

art, science

## No More Secondhand God and Other Writings

R. Buckminster Fuller

These prose pieces and prose-poem essays show the development of the thinking of R. Buckminster Fuller, the world-famous inventor of the Geodesic dome. Fuller himself aptly describes these pieces as "mental mouthfuls and ventilated prose." The title poem "No More Secondhand God," written in 1940, proposes practical means for daily or hourly telephone voting by democracy. It is typical of Fuller's visionary thinking that this idea has only recently reached the threshold of technical feasibility. In another prose-poem Fuller formulates his "comprehensive anticipatory design science." Each of the pieces in this book is an adventure for the mind; each "generates the sublimity of those poetical moments of man's fleeting glimpses of the omniscient."

"There is an extraordinary momentum to Buckminster Fuller's thinking. He is a man incapable of developing only one idea at a time. His ideas stream from him in clusters as he talks two, three, or seven hours at a stretch, one idea suggesting its successor, one cluster of ideas creating new clusters, some ideas expressed in words of his own invention."

—Book Week

Cover Design by Sydney Butchkes

Cover Photograph by Barry Sonnenfeld



A Doubleday Anchor Book

# No More Secondhand God

## R. BUCKMINSTER FULLER



NO MORE  
SECONDHAND GOD  
*and other writings*



R. BUCKMINSTER FULLER is the world-famous inventor of the geodesic dome. His distinguished career has taken him all over the globe, where he has been consultant to governmental and private agencies, and advisor to a wide range of intellectual and political leaders. He has been Research Professor at Southern Illinois University since 1959. He is a Fellow of the Royal Society of Arts; Fellow, American Association for the Advancement of Science; and former Charles Eliot Norton Professor of Poetry at Harvard University. Among his recent honors are the Royal Gold Medal for Architecture, the 1968 Gold Medal Award of the National Institute of Arts and Letters, and the American Institute of Architects' 1970 Gold Medal.

Mr. Fuller is the author of EDUCATION AUTOMATION, IDEAS AND INTEGRITIES, NINE CHAINS TO THE MOON, UTOPIA OR OBLIVION, UNTITLED EPIC POEM ON THE HISTORY OF INDUSTRIALIZATION, and OPERATING MANUAL FOR SPACE-SHIP EARTH.

# NO MORE SECONDHAND GOD

*and Other Writings by*

R. BUCKMINSTER FULLER

1971

ANCHOR BOOKS

DOUBLEDAY & COMPANY, INC., GARDEN CITY, NEW YORK

*This book was originally published by Southern  
Illinois University Press, in 1963.  
The Anchor Books Edition is published by arrangement  
with R. Buckminster Fuller.*

*Anchor Books Edition: 1971*

*Copyright © 1963 by R. Buckminster Fuller.  
Topological Hierarchies, copyright 1959 by  
R. Buckminster Fuller.  
All Rights Reserved  
Printed in the United States of America*

## PREFACE

My continuing philosophy is predicated, first, on the assumption that in dynamical counterbalance of the expanding universe of entropically increasing random disorderliness there must be a universal pattern of omnicontracting, convergent, progressive orderliness and that man is that anti-entropic reordering function of universe and, secondly, upon the assumption that man is born with an extraordinary inventory of faculties within an extraordinary inventory of universal phenomena. Most of the inventory is invisible, operating either infra or ultra to our sense apprehending. My philosophic working assumption goes on to assume that, despite the meager degree in which we consciously employ our capabilities in response to the meager degree in which we understand the universal phenomena, we were given our faculties to permit and induce our progressively greater apprehension and comprehension of the universal phenomena. These assumptions are based upon what seems to me to be an overwhelming confrontation of our experience by a comprehensive intellect magnificently greater than our own or the sum of all human intellects which has everywhere and everywhen anticipatorily conceived of the complex generalized, fundamental principles which all together interact as universe.

My experiences seem to have taught me that the wisdom of the comprehensive, anticipatory, universal intellect intended that we progressively employ our inventory of subconsciously co-ordinate

faculties in evermore conscious degree. The history of man seems to demonstrate the emergence of his progressively conscious participation in theretofore spontaneous universal evolution. Man seems unique in this progressive degree of conscious participation in evolution. The rest of the micro-macro universe seems to be subconsciously and spontaneously co-ordinate, as are the majority of our own physically inter-accommodating organic functions. No man is conscious of pushing his plus 1,000,000 individual hairs out through the scalp of his head in special colors and unique shape patternings at some man-preferred rates. Man does not even know why he has hair. No men are conscious of a quadrillion times a quadrillion brain constituting atoms inter-patterning at 186,000 miles per second inside their heads. No men are conscious of co-ordinating their heartbeats and their breathing, even though they know that their hearts beat and that they breathe. No men are conscious of extracting the complex of energetic chemistries from their digestive systems and distributing those energies to the unique energy storages in their respective complexes of glands. No men consciously multiply their flesh cells. Very little that men do consciously of all their functions renders their lives successful in the universe.

Having assumed the anticipatory, universe-conceiving intellect and its invention of the system of man's progressive degree of conscious participation in universal evolution, it becomes logical that man should employ progressively the generalized principles which he discovers to be operative in the universe, investing them in consciously designed pattern strategies expecting thereby to improve man's successful survival in universe and increasing enjoyment of that successful survival experience.

My philosophy requires of me that I convert not only my own experiences but whatever I can learn of other men's experiences into statements of evolutionary trending and concomitantly defined problem challenges and responses. My philosophy requires that physical solution of the problems of the evolutionary trending be attempted by me through consciously designed transforma-

tions of the local physical environment patterning. My philosophy further requires that I at least attempt to solve the problems by inanimate invention of comprehensive anticipatory design science rather than by yielding to the easier behavior of problem discovery and the exhortation of others to solve these problems. Ideas come readily to all. Translation of ideas into theoretically effective physical design takes considerable self-disciplining to be effective. Reduction of such theoretically effective designs into physically operating structural and mechanical advantages requires even greater self-disciplining. Reduction of the physical mechanical advantage into timely and spontaneous inhibitability by our contemporarily evolving society requires patience as well as self-discipline.

These co-ordinate self-disciplines are inherent in the inventory of faculties with which we are endowed and are potential of realizations in the inventory of reported experiences which we have inherited from all men before us. The individual intellect disciplinedly paces the human individual. The individual disciplinedly paces science. Science disciplinedly paces technology by opening up, both widened and refined, limits of technical, advantage generating, knowledge. Technology paces industry by progressively increasing the range and velocity inventory of technical capabilities. Industry in turn paces economics by continually altering and accelerating the total complex of environment controlling capabilities of man. Economics in turn paces the everyday evolution acceleration of man's affairs. The everyday patterning evolution in turn poses progressively accelerating problems regarding the understanding of the new relative significance of our extraordinarily changing and improving degrees of relative advantage in respect to the controlling of our physical survival and harmonic satisfaction. Happily realized augmentation of forward capability is all that we mean by *wealth*.

The unfamiliar complex of the new wealth accounting requirements of the evolving human experiences emerges as an aggregate of unique and popularly discerned everyday "news"

problems. In turn the popularly discerned inventory of problems altogether provides the raw materials to be processed by the machinery of politics. It is the purpose of politics to digest the problems and to provide adequate accounting and readjustments to the unexpected and often disconcerting changes in the patterns of technical advantage realizations. Politics must thus implement life's continually increasing sweep-out and penetration of universe with a continually changing set of operational rules and accounting conventions.

In response to my intuitive reactions to the events and trends of my life, reconsidered in the above stated philosophy, I have found myself from time to time spontaneously and almost unrestrainedly preoccupied in writing out my thoughts, which as I reconsidered them and redefined them eventuated in the present volume, which I call "mental mouthfuls and ventilated prose" which may be poetry also. The form of their expression was developed fortuitously at an earlier occasion when, in 1936, I was preparing a technical paper on forward research strategies for a major industrial corporation.

These forward research strategy proposals of 1936 were predicated upon what seemed to me at that time to be a long overdue, broad reorientation of general technology in respect to its industrial administration and subsequent commercial development and also in respect to the host of fundamental reorientations of science itself, brought about by man's progressive discoveries of nature's nonconformity with long held, educationally adopted yet experimentally unproven "working theories" of science.

My proposed reorientations required realistic renouncement of, for instance, any "things," "solids," "particles," "basic building blocks," "surfaces," "impervious-continuums," "straight lines," etc. The orientation involved utter obsolescence of "nouns" and survival only of verbs. The orientation involved therefore new means to attain more accurate communication, whose new vocabulary, for instance, must be in all ways consistent with the specific behaviors of all the scientific events responsible for the reorienta-

tion; ergo, their newly imposed "realistic" viewpoint. All this had to be translated into "everyday" language without forsaking the objective of equally "realistic" reorientation of a major industrial establishment to the inevitable implications of the scientific evolution as it must in due course impinge upon the broad economic intercourse of man.

Though the preparation for that mid-nineteen-thirties presentation had been developed under the close observation of the corporation's Director of Research, my final written presentation of it was declared by the Director to be incomprehensible. Disgruntled, I re-read it carefully and returned to the Director saying, "Please listen to this," and proceeded to read in spontaneously metered "doses" from my manuscript. As I read I also watched for expressions of comprehension on the Director's face. The Director pondered each verbal dose, and when his face signalled "that is clear" I would intuitively measure out the next portion. Finally the Director said, "Why don't you write it that way?" I said, "I am reading directly and without skipping from my original text"; so the Director said, "It just doesn't *read* that way." The explanation was that the intuitive doses did not correspond to conventional syntax.

When the re-written report was submitted, the Director said, "This is lucid, but it is poetry, and I cannot possibly hand it to the President of the Corporation for submission to the Board of Directors." I insisted that it was obviously not poetry, since both he and I knew how I had chopped up a conventional prose report. The Director said, "I am having two poets for dinner tonight and I will take this to them and see what they say." He returned the next day and said, "It's too bad—it's poetry." The next step in putting the piece to use was to recombine the phrases with dashes, commas, asterisks, and illustrations in such a manner as to seemingly eliminate the "poetical" aspect without losing the "mouth-fulling"—in which final form it was employed effectively.

The poem "No More Secondhand God" was written in 1940 as I sought to discipline my mind into the development of tools

of communication which might render democracy more effective in the era of the increasing political dictatorships. "No More Secondhand God" proposes practical means for daily or hourly telephone voting by democracy. Since 1940 this invention has evolved into my invention of two-way locally beamed television. The latter has now reached the threshold of technical feasibility. Not only may we now beam to each household but each household may now beam right back to central computers, saying, I like it or I don't like it.

The poem called "Machine Tools" is self-explanatory. It emerged in my thoughts because of my concern over the fact that industrial management in particular and the populace in general were almost entirely ignorant, or at least unaware, of the relative significance of the machine tools' functions as the extra-corporeal extensions of total man. The first stanzas were published by *Fortune* magazine in their Christmas edition of 1940 together with paintings of the exciting new giant tools of American industry by Charles Sheeler.

"The Historical Attempt by Man to Convert His Evolution from an Objective to a Subjective Process" was written by me as a Christmas greeting to my friends in 1948 after World War II when I found it appropriate to modify and up-date my inventory of "Universal Requirements," an inventory of the prime variables governing comprehensive anticipatory design science. I first wrote "Universal Requirements" in 1928 and modified them progressively to also govern astronautical architecture.

The philosophy of the "Fuller Research Foundation" is almost self-explanatory. It was occasioned by my thoughts regarding my own classmates at Harvard, 1917, and the circumstances surrounding our pre-World War I formal and informal education. Those circumstances seemed at first of a disadvantage because of their out-of-dateness, but gradually there emerged an appreciation of the rich heritage in general principles to which we had had important and comprehensive exposure in contradistinction

to the importantly narrowing exposures of the mid-twentieth-century trends to ever severer specializations.

"A Comprehensive Anticipatory Design Science," of 1956, occurred as a consequence of my spending a day with Dr. Jonas Salk, the discoverer and developer of the first successful polio-virus vaccine. Dr. Salk asked me how I would define my occupation and I told him of my self-described occupation as an "explorer in comprehensive anticipatory design science." He said, "That is quite amazing; that is an exact description of my work." His anticipatory design science eventuated in the micro-internal, anticipatory technology of the physical human being. My anticipatory design science eventuated in the external macro-environment controlling mechanics and structures by human beings.

"Introduction to Omni-Directional Halo," written in 1959, and "Omni-Directional Halo," 1960, are the consequence of my deep and continuing urge to describe our thought processes and thereby to discover the fundamental generalized mathematical principles governing subjective comprehension and objective realization by man of his conscious participation in evolutionary events of the universe.

The most poetical experiences of my life have been those moments of conceptual comprehension of a few of the extraordinary generalized principles and their complex interactions which are apparently employed in the governance of universal evolution. It is an intuitive realization of the indescribable magnificence and exquisite lucidity of the intellect, conceiving and inventing these entirely and only intellectually discernible principles, which generates the sublimity of those poetical moments of man's fleeting glimpses of the omniscient-omnipotence manifest in the universal interactions of purely intellectual principle.

R. BUCKMINSTER FULLER

*Carbondale, Illinois*

*May 9, 1962*

## CONTENTS

PREFACE	vii
LIST OF ILLUSTRATIONS	xvi
LIST OF TABLES	xvi
1. <i>No More Secondhand God</i>	1
2. <i>Machine Tools</i>	31
3. <i>The Historical Attempt by Man to Convert His Evolution from a Subjective to an Objective Process</i>	41
4. <i>Universal Requirements of a Dwelling Advantage</i>	45
5. <i>The Fuller Research Foundation, 1946-51</i>	65
6. <i>A Comprehensive Anticipatory Design Science</i>	75
7. <i>Introduction to Omnidirectional Halo</i>	105
8. <i>Omnidirectional Halo</i>	115



## LIST OF ILLUSTRATIONS

1. Omnidopler Effect	113
2. Linear Tetrahedron	123
3. Pattern of Thought	125
4. Pattern of Thought—PHASE 2	126
5. Pattern of Thought—PHASE 3	127

## LIST OF TABLES

1. Angular Topology Independent of Size	129
2. Tetrahedronal Mensuration Applied to Well-Known Polyhedra	131
3. Tetrahedronal Mensuration Applied to Spheres	133
4. Topological Hierarchies	136-37
5. Dymaxion Energetic Geometry	140-41

## *No More Secondhand God*

Late tonight  
 (April 9, 1940)  
 I am just sitting here  
 for one of the many reasons that  
 people find themselves passionately isolated.  
 (The cause is rarely noble.)  
 In the midst of my overly  
 self-emphatic thought  
 I say, suddenly,  
 (as most of us do):  
 imagine, realize, the preposterousness of your chagrin  
 in the face of what is involved  
 in the newspaper headline  
 on the chair over there.  
 OSLO KEY BASES TAKEN BIG SEA AIR BATTLES ON  
 World Telegram 7th Sports.

It's no longer a phoney war  
 but I don't think about that  
 nor do I think much about Oslo.  
 I think of such of the aviators and sailormen as  
 are in command of their faculties  
 on both sides at this moment.  
 Though you have been out in

a froth-spitting squall  
on Long Island Sound or  
in an ocean liner on a burgeoning sea  
you have but a childlike hint of  
what a nineteen-year-old's reaction is  
to the pitch black shrieking dark out there  
in the very cold northern elements  
of unloosening spring  
off Norway's coast  
tonight  
15,000 feet up, or  
fifty under or  
worse,  
on the smashing face of it and  
here I see God.

I see God in  
the instruments and the mechanisms that  
work  
reliably,  
more reliably than the limited sensory departments of  
the human mechanism.

And he who is befuddled by self or  
by habit,  
by what others say,  
by fear, by sheer chaos of unbelief in  
God  
and in God's fundamental orderliness  
ticking along on those dials  
will perish.  
And he who unerringly  
interprets those dials  
will come through.

And--thoughtwise exploring further  
the possibilities of unerring interpretation  
I think of the strangest of paradoxes  
vouchsafed to, and by, man.  
For most simply through paradox  
do I usually discover truth.

A sufficient light within  
a seemingly opaque black object  
may suddenly convert that object  
into a brilliant vari-colored lantern.

As a philosophic corollary:  
multifaceted truth  
is discovered  
within the lantern of paradox  
whose contrasting colors are but  
angularly separated  
lines of the spectrum  
of the unit phenomenon,  
light,  
only at differing  
wave lengths and frequencies.  
Anew and translucently  
truth is thus lensed  
in all the colloids  
to human necessity,  
such as drama and music,  
religion, fun, anger, war,  
prejudice, praise,  
as individually assumed  
personal virtues and  
relative proximity  
to God.

*Ecce!*

all peoples divided against one another are  
in their digressions  
equally inverted  
and self-deceived  
in their respective  
tampered-with standards.

The degree of self-deception  
is proportional  
to the width of the angle  
of disagreement,  
and the greater that angle of stress  
the greater the anger.  
The greater the anger,  
the greater the susceptibility  
to further propaganda—  
a cancerous hate growth.

And all propaganda is false  
if merely by misemphasis.  
It is false because  
it approaches diametric unbalance,  
which scientifically speaking  
is chaotic.

Chaos is erosive, explosive, shattering,  
and therefore the antithesis  
of the only potential survival means  
of homo sapiens:  
through the harmonie integration of knowledge  
whose kinetic is uni-versal.

Observe some paradoxes.  
On the one hand the Germans and Russians

preaching rule of the masses—  
National Soeialism, atheism, paganism—  
are in faet the sole demonstrators  
of the importance of individualism.  
For they employ individualism's  
most cogent premise  
that the ship must have but one eaptain.

And as individuals they believe precisely  
in the survival superiority of meehanized man.  
But the organized ehureh  
uncomprehending  
the mechanical extension of man  
says that such belief is pagan  
and the totalitarians accept the designation as true  
and therefore proceed  
with wanton conviction  
to behave in the appropriate manner  
of a social outcast.

Thus "licensed" they invent  
vast and oftentimes ludicrous  
prevarications  
as ballistic instruments.  
They lie with as eager enthusiasm  
as that applied to gunpowder and plane making.

And on the other hand the English and Freneh  
though preaching Democracy, Individualism, and  
Christianity  
are the greatest progenitors of collectivism and  
paganism  
for theirs is a corporate amorphous individualism  
a legal entity individualism  
of limited personal liabilities,

a shadowy industrial monopoly,  
a secondhand dictatorship,  
soulless.

And its sovereign perfidies,  
perpetrated usually through the negative tactics  
of omission or misemphasis,  
may reasonably be charged off to "impracticality"—to  
"unwieldiness,"  
to "vagaries of custom,"  
to "sportsmanship," to public "convenience,"  
or to "mystical traditions"  
incumbent upon the corporate Messiahhood  
of sovereign nations.  
And the machine is to them and their church  
but an inanimate, garagey sort of money pump.

Albeit,  
the preaching individual of either side  
believes naïvely  
in his own personal free will articulation  
and benevolence.

I say naïvely, because the war itself  
is the direct cumulative result  
of non-freedom of the will of the individual  
to articulate itself in the attainment of  
its obvious potentialities  
of better living on earth.  
Children are not born slaves.  
Slavehood is swiftly superimposed.  
Now the inanimate slaves are here to take over  
but the animate slave complex is still virulent  
particularly  
in the subconscious of managers.

And in the traditions they manage.  
Wherefore total abolition apparently involves  
first burning down the old house,  
set on fire as an unbelievable clown-act  
which much to the amazement of the circus proprietors  
no one attempts to put out.  
In the great quasi "democracies,"  
so far as the general scheming of things is concerned  
the individual no longer exists.  
Mass production anticipates  
the individual's selective functioning.

Chain hotels mass-produce  
mass-collected service suggestions  
tendered on printed cards  
by a mass-publicized unseen "cordial host,"  
who oftentimes a thousand miles away,  
sometimes long dead,  
sometimes quite nonexistent  
is "personally interested in you and your comfort,"  
at 200 of your cents on "his" dollar.

Here also as citizen  
man is expressed only as a party machine  
in the "body" politic,  
and his government expresses a mean low average  
statistic "man."  
Any social action, if at all,  
is weeks, months, and years laggard  
to the thinking frontier of the individual.  
His hour, minute, and split second thinking  
and vital selection  
are most nearly interpreted  
but nevertheless inadequately,

by the corporate cranium—"Journalism,"  
industrialization's limited-liability vocalizer.

And as capitalist or as inventor,  
or as worker in the democracies  
he is no longer individual  
for he is no longer effective as such.  
And he may only be flavoringly effective  
as one of the many merged riskers,  
researchers, believers, or laborers.  
No corporate expression expresses  
what he exactly means,  
and therein precisely  
lies the fate of Democracy.

Many people believe Democracy obsolete.  
They are wrong.  
Obsolete is the one thing  
Democracy can never be,  
obstinate, obstreperous, observant, obscure, but—

I will explain. That is, I will  
if it's Democracy you really wish to save,  
and not some trick you have been getting away with  
behind its kindly broad young back.

(If you don't really believe in the world that is,  
but only in one to come, or one gone by,  
your best chance of finding such another  
is by walking out a very high window.)

If you do believe in the world that is,  
and wish to continue its development  
and are willing truly  
to pay your way

take a chance on Democracy.  
You will find its highway plunk beneath your feet.  
Today's sign posts along it are modern.  
They say for instance:

If you wish to prove Democracy  
a preferential method of living  
don't resort to Dictatorship to prove it.  
Thus have all the rest of the major nations  
allowed themselves to be bum's-rushed into doing  
by panicked international finances.

Out of the method chosen in the time of emergency  
emerges the new survival way of peace time  
government.

Democracy has potential within it  
the satisfaction of every individual's need.

But Democracy must be structurally modernized  
must be mechanically implemented  
to give it a one-individual-to-another  
speed and spontaneity of reaction  
commensurate with the speed and scope  
of broadcast news  
now world-wide in seconds.

Through mechanical developments  
of the industrial age  
the cumulative production of human events  
within the span of a four-year administration  
is now the quantitative equivalent  
of the events of a four-hundred-year  
pre-industrial dynasty.

But it is the producer salesman  
who has been super instrumented  
and merged into a tinker colossus,  
a Pan-Continental  
blacksmith, baker, and light maker.

Democracy must, as consumer and worker,  
as soldier and mother,  
as scientist, or simple enjoyer,  
be made adequate cathode  
to the mighty merged annode.

Devise a mechanical means  
for nation-wide voting  
daily and secretly  
by each adult citizen  
of Uncle Sam's family:  
Then—I assure you  
will Democracy “be saved,”  
indeed exist,  
for the first time in history.

This is a simple mechanical problem  
involving but fractional effort  
of that involved in distributing  
the daily mails to the nation.  
Telephone talks in the U.S. each day  
are three times the number  
of votes which were cast  
for President  
in the record election year.

Electrified voting as bride  
to our most prodigal  
wildcat broadcasting

and beloved son—journalism,  
promises a household efficiency  
superior to any government of record  
because it incorporates  
not only the speed of decision  
which is the greatest strength of the dictator,  
(a boon if he's godly,  
a death-ray if he is not)  
but additional advantages which can never be his.

Additional advantages of electrified voting  
first coming to mind:

1. Provides an instantaneous contour map of the  
workable frontier of the people's wisdom,  
for purposes of legislation,  
administration, future exploration, and debate,  
so that neither over nor under  
estimate may occur,  
of their will and ability.
2. Certifies spontaneous popular co-operation  
in the carrying out of each decision.
3. Allows for continuous correction of the course,  
or even complete reaction,  
should (and as) experience indicate desirability,  
without political scapegoating.
4. No foreign power in the world  
can stand up against  
the unified might thus invoked  
through the thrilling mystical awareness  
of multimillions of individuals  
that they personally

have taken responsibility for the course,  
 and that their own inward secret moral decision  
 coincides with the majority  
 in the application of their mutual strength,  
 (vast now in U.S.A.  
 by the will of God  
 beyond any in history)  
 in the righteous salvation  
 of the peoples of the earth.

5. The credit and imagination  
 of all outside peoples of the world  
 will be so stimulated that nothing will stop them  
 short of attaining a line to that voice.  
 But so to do  
 they must join up with Democracy.

6. The possibility mathematically  
 of effective abuse through cheating  
 is nil.  
 I venture to say that the self-policing  
 by the honor system  
 spontaneously invoked  
 would make the fate of horse thieves  
 or snatchers of absent-newsvendors' pennies  
 frivolous by comparison.  
 No block or pressure group  
 that is not a constitutional enemy  
 could consider running the risk of "stuffing."  
 The direct votes of any subversive enemy to  
 Democracy within  
 the U.S. would be inconsequential in number—  
 would eventually disappear in such a system.

7. It cuts right across

all red-tape of legal precedent  
 and any question of constitutionality, and  
 may be started extra-mural to the constitution  
 while getting out the bugs,  
 for instance by Charlie McCarthy, and Clifton Fadiman,  
 script by "Time Questions," sponsored by Coca-Cola.  
 Someday to be constitutionally adopted when tuned up.

8. The economic credit base is self-contained.

9. As direct evolution it cancels  
 the possibility of revolution.

Accomplishment of this voice  
 must be a deed of organized responsibility  
 of the U.S. press in its broadest sense.

If having tried it,  
 a modernized, electrified, direct Democracy  
 proves inferior as a survival means  
 against all-comers,  
 then may the people turn with contentment  
 to the superior means.  
 But if direct Democracy is not tried now,  
 future generations will again champion it,  
 and there will be world civil wars  
 until it receives adequate trial.

I believe America has now  
 won the right to be  
 first to try Democracy  
 that it is both sufficiently experienced  
 and intellectually developed  
 to provide a safety factor margin  
 which can insure success after

all deductions:  
for bitter hardship  
of mental and physical stress;  
for surprise, and panic;  
and most importantly for gross error.

But whatever America's  
choice—I go with it  
with heart and soul for  
its sagacity and time sense  
I believe infallible.

Yes, I can see how that would be  
a superior means of government,  
but there is still something  
essential and bigger  
which we first must consider;  
without which one, or infinity,  
of life cell organisms  
is but frightful matter—  
and that is rebirth of  
OUR FAITH—

In a direction;  
In comprehensible meaning  
no matter how meager  
that checks with our daily thought  
with our most random soliloquy;  
that implicitly tingles in our fingers and toes,  
and gladdens the vision;  
that even is singing in me  
as I catch at a new popular song.  
Faith, far, far more precise in meaning  
than the academicians'  
“nonanthropomorphic” designation of God,  
and with none of the popular vagueness  
of Einstein's epochal

“cosmic religious sense,”  
yet embodying all that is important of those concepts,  
not down or up written,  
but translated to a living  
workable spontaneity that  
requires no answer from  
others or books.

An all sense exciting,  
all reason inspiring  
Faith in omnipotent justice  
omniscient love  
always attending  
with infinite wisdom.

There is of course the church—  
today a big-three monopoly of credos—  
a coalesced “Roman, Protestant and Jewish,” big  
business,  
its back to the wall.

Irrespective of its past values to faith  
the church is now but a convenient compromise  
to divert the pressure of fear's escape  
through the perpetuated waterwheel  
of the re-manufacture of all useless contrivances  
of which the individual would personally divest himself  
but for nostalgic ramifications.

The church,  
once the largest and busiest of community structures,  
now exists only as a memorial  
to the necessity of a special building for God,  
so that a compromise “He” need not interrupt business  
in the latter's over-towering houses  
on the six days of the week



that are not "His,"  
yet be on hand  
to broadcast "the right stuff" on the seventh,  
while the boys go off golfing.

The church is also  
security-capital's nontaxable hostage  
against mobile Democracy's  
eventful discard of "real" property—  
the perpetual debt base,  
that persistent static  
in the otherwise high fidelity reception  
of industrial democracy economics.

In the totalitarian states conversely  
all Messianic credit is, *caro nome!*  
allocated to the supreme living individual  
symbolically centralized in one—  
"Our Father who art in Berlin,  
Moscow, Madrid, and Rome"  
simultaneously—  
the end all of anthropomorphic religion.

And the supreme individual is never a pretty god  
and he is funny  
when he goes by special train  
to meet himself coming the other way  
through a mountain pass  
and shakes hands with his absurd reflection.

But all of importance here to me tonight  
are two reactions—  
one negative, the other positive.  
First, that both sides  
have allegiance to fallacy—

and the individuals of each side  
are forced to esoterica  
and to personal exemptions from all law,  
scientific or moral  
though the laws are clearly mirrored  
to each individual as essential  
for all others but self  
(well, maybe not for the sweetie).

And positively:

That tonight vividly (as tacitly always)  
God is articulating  
through his universally reliable laws.  
Laws pigeonholed by all of us  
under topics starkly "scientific"—  
behavior laws graphically maintained in the performance  
of impersonal instruments and mechanics  
pulsing in super sensorial frequencies  
which may serve yellow, black  
red, white, or pink  
with equal fidelity.  
And I see conscious man alone  
as mechanically fallible  
and progressively less reliable  
in personal articulation  
of God's ever swifter word,  
which was indeed in the beginning.  
Only as mind-over-matterist,  
as philosopher, scientist,  
and informed technician  
impersonally and universally preoccupied  
is man infallible.

For the oral and written word

was but the haphazard infant  
of the ever more precise  
modern instrumental articulation  
of communicable comprehension.

We know this to be true  
because mechanisms can only perform successfully,  
their ever more superhuman and untiring  
precision of communication of truth  
in proportional degree to their engineered adherence to,  
and interpretation of,  
universal laws,  
which though sometimes couched in poetry  
are always essentially scientific.

As minor testament  
witness the two-hundred-inch telescope  
as it proceeds to reveal a known universe  
at least eight times as great as yesterday's  
and the electronic microscope  
which now begins the revelation  
of fundamental minutiae  
50,000 times finer than the best light (or eyesight)  
microscope,  
and the actual achievement of atomic energy,  
released and controllable.

These wondrous actualities were always there,  
inherent in the universe  
of a god of meaning,  
but only now  
through the impersonal "word"  
of these scientific instruments  
does God speak of them  
to our widening comprehension.

I knew in a sense  
that they were there.  
So did you.  
But neither of us knew  
that the other knew  
until we could "say" to each other,  
"There they are precisely identified."  
Only finite adherence to stark laws of science  
made this possible.

And God says  
observe the paradox  
of man's creative potentials  
and his destructive tactics.  
He could have his new world  
through sufficient love  
for "all's fair"  
in love as well as in war  
which means you can  
junk as much rubbish,  
skip as many stupid agreements  
by love,  
spontaneous unselfishness radiant.

Think it over—I was amazed  
and despite all inertia impelled to write—  
and many may have written it earlier  
and better without my knowledge.  
In fact I'm sure they have,  
but I'm writing this  
and that is important,  
that is God at firsthand.

Never before has neutral  
looked on with such unprejudiced willingness

to evaluate, adjust, and comprehend.  
Never before has neutral so powerful looked on.  
Never before has neutral  
by virtue of a myriad of instruments  
been so keenly aware  
of every little hamlet upon the face of the globe,  
so intimately near to them—  
yet at the same time so duck's-backed  
to broadcast falsehood or half truth.

These are innocuous  
in the magnificent mechanical extension . . .

People of the United States,  
(I believe the vast majority of them)  
who are at present especially staked out  
to be fooled in a big way,  
which is vitally and mortally,  
by all the warring or plotting factions  
foreign and domestic,  
are precisely those who alone remain unmoved.

It is these silent propagandees  
who unerringly appraise  
the pro- or anti-social values  
of each world event;  
of each communiqué;  
and even of each personal happening  
at other times trivial:  
as these too may shade the outcome values  
of man's transition  
from dominant self-deceit  
to preponderant self-mastery;  
from stomach rule to dictate of reason;  
from politicians tricking

to scientific guidance;  
from a fear to a happy comprehension motivation.

And because he is innately  
aware of these things,  
does man evade past snares—  
steel himself against artful pathos;  
welcome the speedy destruction  
of those former barriers to world happiness  
which have been humanly insuperable  
without fracture  
by any individual member of the old order,  
from annihilist to deacon,  
from clerk to Prime Minister,  
no matter how distinguished  
by courage and integrity.

But now common man has  
implicit faith in common man;  
can safely negotiate a roadway  
with any unknown other man—  
even passing each other  
at one hundred and forty miles an hour  
in opposite directions—  
has only been prevented  
from intercommunicating that faith directly,  
but now is willing to wager all  
on mutual effective comprehension  
at the crucial moment—  
will not be shamed out of his faith  
by attempts to falsely identify him—  
has weighed his distress  
over concentrate frightfulness  
of an exquisite moment  
against unending elusive

and unmitigated greater suffering.

The revolution has come—  
set on fire from the top.

Let it burn swiftly.

Neither the branches, trunk, nor roots will be  
endangered.

Only last year's leaves and  
the parasite-bearded moss and orchids  
will not be there  
when the next spring brings fresh growth  
and free standing flowers.

Man now vastly instrumented  
and attendant upon universal laws  
in his "blind" flying through life  
will give ever less heed  
to the seat-of-the-pants opinions  
of personal equation aces  
for he knows it was those detonations  
which formerly misguided him  
into his betrayal by selfish scheming.

Here is true world democracy in the swift making;  
a democracy which socializes all plenty  
as that plenty is wrested from scarcity  
by world-widening co-operative industry;  
a democracy which, scientifically  
seeking categorical validity for all the motivations,  
taxes only inertia  
and awards copiously its individuals  
who radiantly expand the commonwealth;  
awarding them out of the newly integrated wealth  
captured from the unseen fresh fruits  
of the limitless environment—

and not by the slightest impoverishment  
of commonwealth,  
either by mortgage  
or individual indebtedness.  
Here is God's purpose—  
for God, to me, it seems,  
is a verb  
not a noun,  
proper or improper;  
is the articulation  
not the art, objective or subjective;  
is loving,  
not the abstraction "love" commanded or entreated;  
is knowledge dynamic,  
not legislative code,  
not proclamation law,  
not academic dogma, nor ecclesiastic canon.  
Yes, God is a verb,  
the most active,  
connoting the vast harmonic  
reordering of the universe  
from unleashed chaos of energy.  
And there is born unheralded  
a great natural peace,  
not out of exclusive  
pseudo-static security  
but out of including, refining, dynamic balancing.  
Naught is lost.  
Only the false and nonexistent are dispelled.

And I've thought through to tomorrow  
which is also today.  
The telephone rings  
and you say to me  
Hello Buckling this is Christopher; or

Daddy it's Allegra; or  
Mr. Fuller this is the Telephone Company Business  
Office;  
and I say you are inaccurate.  
Because I knew you were going to call  
and furthermore I recognize  
that it is God who is "speaking."

And you say  
aren't you being fantastic?  
And knowing you I say no.

At least a quarter of a billion people  
sit quietly each day for hours in  
darkened halls.  
And they say they are "at the movies"  
not looking at anyone or anything real.  
They certainly don't see the screen.  
I say they are looking at God.

Incalculable millions of people sit isolated and silent.  
And say they are listening to  
Josephine Baker swinging or  
Raymond Gram Swing  
of course not really, but really;  
and I say they are listening to God.

And the journalists tell me  
that Hitler is blitzkrieging  
over the earth.  
And I say that is the greatest  
understatement in history  
for it is God  
now doing the housecleaning  
and making the necessary renovations

in a hell of a hurry because  
we personally failed to make them  
in everyday ways in our own time  
and there is now only half a world left,  
and one-half of our time remaining  
in which to  
"let our hair all the way down"  
and say, "We have plenty, we have  
the means, the ability, the knowledge.  
Let us start the mechanism  
to creative account;  
not to vast and vaster destruction."

"Let us not subscribe to remedy by amputation—  
first of all of our heads."  
Let us say to the East and West and the North and the  
South  
to its now reality spokesmen,  
"Here is our helping hand  
forget your fighting.

Let's put things to rights.  
We'll take care of the inconsequential accounting  
when mankind has been salvaged if you insist on  
accounting;  
for we won't!"  
That is the active, realistic loving  
of this one moment in all time.

No one in America will say that its leader  
is overstepping his authorized bounds  
if he takes sincere, forthright, and  
adequately big steps  
to accomplish world healing.

God will be handling the radio-telegraph  
for such a mandated dictatorship; and  
Democracy is not challenged by such a dictator  
whose very first move must and will be  
tidal-waved with Demos authority.

Stop "calling names"  
names that are meaningless;  
you can't suppress God  
by killing off people  
which are, physically, only trans-ceiver mechanisms  
through which God is broadcasting.

But his requirement is dynamic and  
if man-mechanism proves too inefficient as an invention  
he will immediately devise a cataclysmic improvement.

#### POSTSCRIPT (1961)

Because scientists today are specialists  
rather than generalists,  
they have tended to avoid consideration  
of the total significance of their interrelated work.  
The recent decade's evolution of science  
finds its specialists continually surprised  
to discover their respective specializations  
bringing them into unexpected proximity  
to other specializations theretofore considered  
almost infinitely remote.

We have come to the era of the hyphenated sciences—  
bio-chemistry, mathematical-physics, physio-chemistry.  
Suddenly the chemist and physicist discover  
that they are both dealing essentially with the atom.  
So they now agree to divide their common field

and the physicist deals with the internal affairs  
and the chemist with the external affairs  
of the atom.

Biology which used to think of itself  
as concerned fundamentally with cells  
next found itself concerned with the chemists' molecules  
and now discovers that it must look to the atoms  
of which the molecules are formed.

The next decades will see  
the thus inadvertently integrating scientists  
becoming surprisingly aware  
of the total inter-relationship  
of the macro-micro, universe-exploring sciences.

With the integrating awareness  
and its synergetic appreciations  
by the chemico physicists  
will come a new era of philosophy.

In these coming decades  
the scientists will express their amazed discovery  
not only of the total orderliness  
discovered throughout universe  
but also of the total interrelatedness  
and nonsimultaneous interaccommodation regularities  
of universal evolution.

Men used to say  
that man the scientist brought order out of chaos.

The scientists are about to discover  
that all that was chaotic

was in man's illiterate and bewildered  
imagination and fearful ignorance.

Wherever and whenever men  
have explored with scientific integrity  
they have reported the discovery  
of the exquisite orderliness of patterning  
of dynamically evolving nature.

Scientific man is then about to discover  
a comprehensive integrity  
manifest of the highest order of intellectual  
differentiation  
and anticipatory conceptioning.

This comprehensive intellectual integrity  
may be logically symbolized  
by the integral yclept God,  
as the synergetic totality  
of universal chemistry's behavior  
unpredicted by the behavior of any of its parts  
or sub-assemblies of its parts.

Inasmuch as all men  
are trending to become scientific,  
this will mean that all men  
will also trend toward discovery  
of the comprehensive, orderly,  
nonsimultaneously interaccommodative,  
integrity of universe  
in which the energy  
of the physical portion of universe  
is total and integral  
and though infinitely differentiable locally  
can neither be created nor lost

and in which finitely combined  
physical and metaphysical universe  
a law of conservation of intellection  
will also obtain  
whereby intellect  
as the metaphysical portion of universe  
will also be total and integral—  
and though infinitely differentiable locally  
intellect can neither be created nor lost.

Thus will emerge  
an entirely new philosophical era  
of man on earth.

All religions we have known  
have been sustained  
by the arbitrarily adopted or inculcated credit  
(credo—belief) of individuals who have not themselves  
made direct discovery,  
or unique intuitive apprehension,  
of the universe's intellectual integrity  
superstitiously accorded  
by the blindfolded believers  
to the few individuals of high intellectual lucidity  
and extraordinary self-discipline  
who have dedicated themselves  
to their intuitive anticipation  
of the now scientifically emerging realization  
of the comprehensive integrity of total information.

All organized religions of the past  
were inherently developed  
as beliefs and credits  
in "second hand" information.

Therefore it will be an entirely new era  
when man finds himself confronted  
with direct experience  
with an obviously a priori  
intellectually anticipatory competence  
that has interordered  
all that he is discovering.

With this discovering will vanish  
all concepts of a universe  
originating out of chaos,  
out of a "primordial ooze."

There will dawn an awareness  
of the integral significance of man  
being born subconsciously co-ordinate  
as a billion-fold complex patterning  
later to consciously discover  
that there are no ponderable,  
smallest, hard-core, "thing" particles  
only abstract, frequency events  
and that negative matter  
is co-equal with positive matter  
and that equilibrium  
between positive and negative is zero.

Man will discover  
that he is dealing intellectually  
in a universe of intellectually differentiated,  
co-operative yet nonsimultaneous equations  
governing the interrelationships  
of purely abstract principles,  
no more, no less.

### *Machine Tools*

#### *Orchestral Instruments of America's Mass-Production Symphony*

When the Almighty  
happened to bemuse his wisdom  
with playing shoot-the-works,  
he opened with one hand the hot valve  
of absolute energy  
and with the other  
the cold valve  
of absolute time.

Now with seemingly deft attention,  
and now with seeming abandon,  
he valved them together  
in variety of proportion—  
out through the mixing spigot  
of universe  
to occur in the reservoir  
of absolute space—  
and the synthesis  
no matter in what proportions  
always combined  
as degrees of motion.



However  
that motion  
is only measurable  
in dimensional units  
of energy, time, and space  
which are mostly infra or ultra  
to the dimensions  
which the personal faculties of man  
are accustomed to detecting  
by direct sensing  
and by conscious awareness  
of relative comparisons  
made by himself to  
previously established measures of  
any conscious experience  
with motion.

Thus self-limited  
he fails to comprehend  
the astronomical speeds  
of the infinite host  
of heavenly bodies  
which seemingly hang motionless  
in his carelessly accepted  
scenic environment.  
"What do you mean, macrocosm?" he says  
to his tiresomely thinking self.

He fails equally to comprehend  
the exquisite speeds  
at which infinite numbers  
of atomic components  
course  
and which seemingly bulk

to his bored ego as  
gross solids, liquids, or gases.  
The microcosm, phooey!

He fully perceives a few score  
of mediocre speeds,  
for instance: his twenty-five-mile in four hours  
marathon,  
his four-hundred-mile in one hour flying  
whose speed ramifications  
are now scaring his limited imagination  
almost to death,  
and whose relatively slow propeller speed  
he cannot even see.

He can see a *few* objects  
illuminated by light, e.g.,  
dust mote or elephant,  
as these super whizzing  
atomic universes  
move slowly en masse  
relative to man,  
but he cannot see light  
which moves at  
five hundred thousand times  
the speed of the fastest  
moving propeller tip.

In like manner he hears  
the slow motion of  
air molecules  
mechanically agitated  
in expanding waves, propagated  
by a diaphragm magnetically vibrated  
by electron-stream motions

in turn valved by radio wave impulses,  
which themselves in turn moving  
at the speed of light  
he also hears not.

But all anywhere about man,  
within and without,  
is eternally, ceaselessly motion,  
whether he senses it or not,  
and which God alone  
seems to care that he know.

For God may reasonably be  
slowly up-winding  
that game of shoot-the-works  
through the instrumentality of man;  
or failed by man,  
possibly through  
some other animate specie or process  
like aurora borealis  
cosmic electrolysis.

For, though sensing motion  
only relatively  
and that to limited degree  
man has nevertheless measured  
and fixatingly accumulated,  
first by subconscious storage  
later by records in books  
his constantly re-experienced  
engagements with motion,  
such as with the days,  
tides and heart beats,  
and finally music.

Finally man has accumulated  
sufficient knowledge of certain proportions  
of time and energy  
and of their respective  
special relationship behavior  
to selectively segregate  
and reassemble  
those constituents for himself.

In such a manner  
has man  
learned to control  
motion  
external to his own body-motions  
to a meager degree,  
directly by tangible devices.

But as uncounted increment  
have his faculties gained  
distinct new abilities  
through momentum of faith  
in effort of learning  
from events as they happen  
further to capture and  
segregate for immediate or later use,  
in portional recomposition  
non-directly sensed units of motion  
by intellectually selected operations  
of those firsthand devices.

So amplified in degree  
are these quantities of motion  
captured by faithful extension  
of both ends of the sensibly charted scales  
beyond the sensorial limits

as progressively to place  
a working measure  
of the original omnipotent power  
within man's conscious control.

This control is in turn pyramided,  
in direct proportion  
to man's witting appreciation  
of his reorderingly creative potential;  
at least to the extent of  
dynamically balanced composure  
of those areas of environment  
seemingly valved off  
by original ad lib.  
of the almighty.

But there are those  
who cogently argue  
that man still falteringly progresses  
by the two forward and one back  
locked-step of  
an active inferiority complex.

But any way  
we may choose to argue,  
the fact is unaltered that  
man has already captured  
harnessed and put to work  
what is relatively  
a whole lot of motion.

He has already devised  
certain mechanical extensions  
of his integral mechanics,  
one thousand square miles of whose

bearing surfaces  
are now all in motion  
relative to  
one thousand square miles  
of their complimentary  
supporting and controlling  
mechanical surfaces.

And between these two  
one thousand square miles  
of intimate surfaces  
occurs  
the boundary layer  
within whose special dimensions  
time and energy  
war for supremacy—  
with wisdom  
as match maker  
referee and judge.

And their battle  
is vastly more vital  
at this particular stage of the game  
of shoot-the-works  
than that simultaneously occurring  
within the dimensional space  
of several million square miles  
of most fertile farm land  
of the earth's own boundary layer.

For somewhere between  
nature's random dispersion  
of the ninety-two chemical elements  
as simply constituting  
the panorama first viewed by Adam—

as seemingly motionless except for himself,  
and through which now flies an airplane—  
somewhere between that original dispersion  
and the magnificent composure  
in orderly arrangement of  
those dynamic elements  
not only in structure  
and mechanics of the airplane  
but also throughout  
the innumerable processes and instruments  
involved in wresting the plane  
from the raw countryside,  
and thereafter maintaining  
its useful passages between  
chosen loci;  
there must be, by mathematical law,  
a weakest link.

In converting one hundred tons  
of raw broad countryside  
into five tons  
of scintillating airplane-in-flight,  
the machine-tool is specifically  
that link  
in the industrial chain of events.

In the machine-tool operations  
the *final* pounds, ounces, and litres  
of twenty to one  
tonnage reduction  
of materials  
exquisitely occurs.

Here are prepared  
the mechanical surfaces

between which time and energy  
are masculated.  
And here man and his wisdom  
must be the master.  
Yet there are few of his members  
qualified for such mastery.  
And there creaks incisively  
today's weakest link.

Where there is creaking  
there is dominant friction;  
and where friction is dominant  
there time is winning out over energy—  
cold death is strangling  
warm life.

And that weakest link  
creaks at its one end  
with the rusting substance  
of *experienced artistry*  
and at the other  
with the frustrated tendon  
of fatiguing *knowledge*  
required respectively  
to both *operate* and *design for*  
the machine tools  
with sufficient speed,  
flexibility and precision,  
efficiency and reliability,  
to keep pace with  
all the other functions of industrial survival.

As the routine industrial functions  
become ever more simple  
and of less labor

as consolidated result  
of all the time harnessed  
machine-tool technology  
the pinch becomes more excruciating  
at the machine-tool operator's  
station itself—  
a station and its baggage master  
too easily forgotten  
by man  
as he dozes by  
in his streamlined express  
of ever more carelessly  
limited stops.

*The Historical Attempt by Man to  
Convert His Evolution from a Subjective  
to an Objective Process*

1. The systematic growth  
of man's intellectually-augmented evolution  
is structured within  
a progressively improved  
scaffolding of assumptions.  
The integrity of the principle  
of intellectual assumptions  
as bravely taken within the confines  
of residual facts of disillusioned experience  
is progressively persuasive.  
For the new prospect of magnificent reality  
looms into ken  
as the retrospective lure of abandoned illusion  
first dwarfs then dissolves.  
Thereafter the temporary scaffolding  
advantaged by informed approximation  
of simplifying and interacting principles  
is formally replaced by earned controls  
consisting of ever more exact degrees  
of measurement,  
of the finitely interactive system,  
of unique principles,

of energetic relationship,  
 of universe,  
 its inherent proclivities and articulations,  
 that is, its natural behavior.  
 The newly swollen growth  
 of total interaction of discovered,  
 equated, and valved-in principles  
 floods silently to contain  
 the subconscious rational of the  
 total individual—society.  
 Consciously, society is at first fascinated  
 by the novelties in technical manifestation  
 of the omnidirectional advance  
 as comparisoned only to the residual plurality  
 of fading traditional background illusions.  
 Wherefore:  
 ultimate social awareness  
 of total engulfment  
 by new orientation  
 to comprehensive principles of reality  
 appears first as enormous apprehension  
 of potential loss . . .  
 of what?  
 of things, of vanities,  
 of self-proclaimed prestige?  
 of the illusory values and  
 transitory standards and prerogatives  
 appropriate only to adjustments completed  
 in yesterdays diminutive gains,  
 by exceptional self?

2. When man shall become preoccupied  
 with drawing off the progressive magnitudes  
 of new potential  
 to establish constant world-wide

advancement of living standards,  
 specifically: through the systematic incorporation  
 of scientific knowledge and technical advantage  
 in an earth-embracing service industry  
 of autonomous dwelling and intelligence  
 facility and felicity  
 insuring not only his progressive immunity  
 to annihilative factors of nature  
 but cohering his progressive appetite for truth  
 then will subside  
 the subjective requirements—  
 the negative motivations,  
 the antipathetic surges,  
 the concessions to survival-mandated compromise  
 promulgating the theory of  
 advancement by political initiative  
 whose expedient ways  
 are progressively powered by the  
 accumulating science and technology potential  
 to be tapped only for dubious war objectives.  
 It will take many waves  
 of threatened self-destruction  
 by society  
 to convince and instruct and  
 mobilize  
 an effectively articulate majority  
 of humanity  
 in the synchronization of society  
 towards an objective  
 evolutionary volition  
 inspired by deeply acknowledged faith  
 in an omniscient wisdom and benevolence  
 instructing through intellect . . .  
 (intellect wrote  $e = mc^2$ —  
 energy did not inscribe intellect  $e = mc^2$ )

intellect may write every  
equation of physical behavior,  
but no physical or abstract  
equation will ever compass  
intellect or its self-starter secret.

3. When the objective evolution emerges  
the intellectually architected  
house-of-tomorrow  
will be central to the emergence.

### *Universal Requirements of a Dwelling Advantage*

#### 1. Teleologic Schedule

Check list of the  
universal design requirements  
of a scientific dwelling facility—  
as a component function  
of a new world encompassing, service industry—  
predesigned,  
rather than haphazardly evolved,  
which thus avoids  
a succession of short-circuited  
and overloaded burnouts  
of premature, and incompetent  
attempts to exploit the ultimate  
and most important phase of industrialization,  
to wit,  
the direct application of highest potential of scientific  
advantage  
toward advancement of world living standards—  
to be accomplished by inauguration of a  
comprehensive anticipatory technology  
scientifically informed of the  
probable variables and possible randoms—  
this new volition to succeed

the era of "survival"—  
 that is *survival-despite*—  
 despite preponderant submission to ignorance—  
 ignorance of future probabilities  
 and general behavior of nature—  
 which heretofore "survival" tolerated lethal  
     opportunism,  
 wherein the progressive deteriorations bred emergencies  
 which called upon scientific ability  
 to perform last minute miracles but  
 only as a curative dispensation  
 of morbid inertia.

*The universal design requirements of a scientific dwelling facility are that it accomplish comprehensive advantage for man over all primitive factors of energetic nature. The factors may be broadly classified in four parts as follows.*

NOTE: That I and II below are *subjective* and *defensive* and *exclusive* and that III and IV are *objective* and *offensive* and *inclusive*.

NOTE: That I defines the outer ramparts and II the inner defenses while III represents the inner initiative-taking and IV the full grown outer offensive—conquest—contact.

NOTE: That this arrangement is geometrically teleologic, i.e. omnidirectionally convergent-divergent—irreversibly propogative.

I. *Essentially* RANDOM and SUBJECTIVE phenomena

- A. *Exterior* variables—factors of destructive or useful potential; of nakedly intolerable magnitudes, inescapably impinging
- B. *Interior* variables—factors of destructive or useful potential; of nakedly intolerable magnitudes, inescapably impinging
- C. *Exterior constants* of relative inertia forgotten through persistent obviosity and *randomly* re-encountered

II. *Essentially* ROUTINE and SUBJECTIVE phenomena—INTERNAL TO DWELLING—PREDICTABLY PERIODIC, RHYTHMIC

- A. Inescapable functions of the organic processes, internal to dwelling and external to man
- B. Inescapable functions of the organic processes, internal to dwelling and internal to man
- C. Interior constants of relative inertia forgotten through persistent obviosity, and regularly rediscovered, e.g. furniture to be lifted with each housecleaning.

III. *Essentially* RANDOM and OBJECTIVE phenomena—INTERNAL TO DWELLING—INITIATIVE, SPONTANEOUSLY INTERMITTENT—TELEOLOGIC

- A. Investment of earned increments of lifetime for free will regeneration of the advantage of life over a priori environment. *Realization* of man's potentials as an *individual*
- B. Implemented and insulated spontaneity of feedback *acceleration-continuity* of the self amplifying individual

IV. *Essentially* INCISIVE and routine OBJECTIVE phenomena—EXTERNAL TO DWELLING—INITIATING A SUSTAINABLE COMPLEX CONTINUITY = *design realization of all men's joint potential*—TELEOLOGIC

- A. Investment of earned increments of technical advantage of the science-industry complex in *design realization of the complex dwelling facility service*
- B. Implementation and insulation of synergetic feedback of higher order accruing to spontaneous group realizations of newly evolving potential

*Expanded expression of those four broad classifications of universal design requirements for a dwelling facility. Original topic of broad classification not repeated and referred to only by number.*



I. A. Structural, mechanical or chemical interception and control of *externally impinging factors, either by rejection, reflection, deflection*, through shunting, channelling, impounding, modulating and/or retiming of volumetric flows of variable external factors of nakedly-intolerable magnitudes

1. Immunization against aperiodic, energetic interferences—externally impinging at intolerable magnitudes and heretofore classified as “*cataclysmic*,” because exceeding the practical stress abilities of as yet available technology. *However* (new era essence) since accomplishment of higher physio-chemical stress abilities in, for instance, supersonic flight and snorkle submarine, the stress abilities of technology in general now far exceed the predictable stresses of the hitherto cataclysmic structural interferences—the 180 m.p.h. velocity of antarctic hurricane or Pacific typhoon is now a relatively minor aeronautical velocity-of-interaction of designed structures. External impingements are classified in the order of frequency of probable occurrence and *relative magnitudes*.

A. “*Cataclysmic*”

Improbably annual, possibly “never,” and *least frequent*, but of *highest stress when occurring*

- |                      |                                    |
|----------------------|------------------------------------|
| 1. earthquake        | 8. bombardment                     |
| 2. tornado           | 9. forest fire                     |
| 3. hurricane         | 10. tidal wave                     |
| 4. typhoon           | 11. plague                         |
| 5. avalanche         | 12. radio activity                 |
| 6. landslide         | 13. lethal gases                   |
| 7. volcanic eruption | 14. B.W. (bacteriological warfare) |

B. “*Dangerous*”

Probably annual, or borderline “disaster” magnitudes

1. gale

2. local fire
3. flood
4. pestilence
5. lightning
6. selfishness (self-preoccupation pursued until self loses its way and self-generates fear and spontaneous random surging, i.e. panic, the plural of which is mob outburst in unpremeditated wave synchronizations of the individually random components)
 

a. vandals	e. fanaticism
b. marauders	f. commercialism
c. meddlers	g. materialism
d. politics	

c. “*Inclement*”

of high seasonal frequency and

of low orders of stress or

of naked intolerability

- |                      |                  |
|----------------------|------------------|
| 1. fumes             | 9. heat          |
| 2. hail              | 10. cold         |
| 3. rain              | 11. epidemic     |
| 4. snow              | 12. vermin       |
| 5. dust              | 13. insects      |
| 6. electrolysis      | 14. fungi        |
| 7. oxidation         | 15. minor random |
| 8. vibration (noise) | missiles         |

2. *Rejection*, or *deflection* for delayed or immediate use as

A. energy, admitted into direct work as, for instance, radiation or electronic reaction, or indirectly into work as, for instance, impounded wind (aeronautical) or water (hydraulic) power

1. piped—for direct use
2. wired—for direct use
3. valved—for direct or delayed use

4. stored—in cistern, tank or battery for delayed use

5. stored—in thermal bank or compost bins, etc.

I. B. *Dynamic Control of Internally Impinging Factors*

1. Interception of and dispellment of the momentum trends of ignorance, through incorporation of experience informing natural design replacements, realized in physical principles.

2. Interception and neutralization of bacteria by isolation of, or by direct elimination

3. Elimination of physical fatigue

A. human robotism and drudgery by provision of adequate mechanics of technical advantage

4. Elimination of psychological fatigue (repression) by

A. removal of accident hazard through mechanical adequacy (don't proofing)

B. removal of arbitrary cellular limitations to permit free interaction of living functions

C. provision for selective privacy by push-button sound, sight and smell barriers surrounding any interior space

5. The elimination of emotional fatigue

A. factors stimulating nerve reactions to be automatically controlled in "neutral" until voluntarily brought into play by the occupant through:

6. Provision of mechanics for wide range in selection of means and degrees of sensible realization of the prosaic or harmonic phenomenon

A. visual

B. aural

C. tactile

D. olfactoral, i.e. taste and smell

I. C. *Control by anticipatory design over exterior constants of inertia forgotten through persistent obtrusivity and only randomly re-encountered*

1. Constants of environment, i.e. the mud forgotten be-

tween rains, odorous winds from remote sources, snow-drifting

2. Control devices installed for seasonal duration only requiring inordinate time investments

3. Chemical accumulations (oxides, sludges, fumes)

4. Biological accumulations

A. vegetation, composts, weed

B. insect, animal residues, nestings, general growth changes

5. Surprise emergencies of environmental complex unique to locality, i.e. possible water, oil, gas springs and seepage

II. A. *Provision for (unselfconscious) (spontaneous) mechanical performance of inevitable organic routines of the dwelling and its occupants with minimum of invested attention or effort*

1. Fueling of

A. house

B. occupant (eating) (metabolism)

2. Realignment of house or occupants in sleep by allowed muscular, nerve and cellular realignment accomplished by designed elimination of known restrictive factors

3. Refusing of house or occupants

A. internal, i.e. intestinal, etc.

B. external, i.e. bathing or pore cleansing

C. mental, i.e. elimination by empirical dynamics

D. circulatory: external—atmospheric control; internal—respiratory functions.

II. B. *Control by anticipatory design over interior constants of relative inertia forgotten by fatigue cloture of feedback sensibilities and routinely re-encountered (such as heavy furniture to be moved about daily for cleanliness operations, storages to be overhauled to obtain the tentatively retained devices of possible or infrequent use)*

1. By *provision* of adequate occupational-specialty storage means
  2. By home employment of travel equipment
  3. By dimensional reduction (e.g. of collections of large data to microfilm)
- III. A. Provision of ready mechanical means, complementing or implementing, all development requirements of the individual's potential growth phenomena—allowing the facile, scientifically efficient, no-energy-or-time-loss—spontaneous development of self-disciplined education, by means of
1. *Conning*, i.e. selectively stimulated awareness of the momentary interactions of universal progressions accomplished by means of facile reference to vital data on
    - A. history
    - B. news
    - C. forecasts
 

calls for a conning facility combining book and periodical library, radio, television facilities, systematically arranged incoming reports on

      1. current supply and demand conditions
      2. current dynamic conditions - weather - earthquakes—latest scientific research findings
      3. social dynamics-surfacing of commonweal problems of comprehensive readjustment to new potential and concomitant obsolescence factors
      4. latest technical reference in
        - a. texts
        - b. movie documentation
        - c. television university (soon evolving to increasing importance and reliability as the Autonomous Dwelling Facility becomes widely available)

2. *Adequate mechanics of personal articulation* (prosaic or harmonic) for the spontaneous investment of the imagination-gestating intellectual-increments of experience—(teleology) which trend ever to satisfy the evolving need—prosaic or harmonic—routine or plus. This category of *original articulations* also includes the necessity or crystallization of universal progress
- A. instruments and tools of communication
    1. direct
    2. indirect
    3. aural
    4. visual
    5. tactile
      - a. music, writing, drawing, measuring instruments
      - b. wood, metal and chemical working tools
      - c. typewriter
      - d. wire-tape-and-disc-all-purpose-recorder-synched radio-phonograph-filmstrip projector
      - e. easel
      - f. photographic equipment—taking, developing, printing, projection
    3. *Recreation*—appropriate equipment to full physical development
    4. *Procreation*
- III. B. Insulation, or Isolation, of the Instrumented Initiatives
- III. C. Means of displaying, exposing, experimenting and measuring for progressive improvement of “target” or “trend to target” or “trend following” assumptions-of-realization-initiative-and-articulation—i.e. “vital navigation” or “teleology”; i.e. *personal* and *social* and *cosmic* feedback control. The comprehensive “frames,” relative to which *display*, *exposure*, *experiments*, *measurement* and *progressive dynamic trend assumptions* may be referenced is FOURFOLD.

OBJECTIVE ASPECT	SUBJECTIVE ASPECT	<i>Consolidated Intellectual Advantage, or Aids</i>
1. <i>Subvisible</i> Microcosmic	nuclear particles atoms molecules cells, genes	atomic charts, periodic, etc. spectrographic charts molecular models biological slides
2. <i>Geo-visible</i> Geographical ( <i>Visible, near</i> ) Earth	crystallographic biologic sub-surface surface envelope	globes, maps, geological stratification maps world and local physio- logical data spectrum charts
3. <i>Astro-visible</i> Macrocosmic ( <i>Visible, remote</i> )	comets asteroids planets stars nebula	star globes star charts
4. <i>Supravisible</i> Compre- hensive Omni- permeative	abstracted principles radiation  number sets group behavior phenomena probability transformations independent of dimensions finitude and definitude	energetic geometry devices (vectorial, formative, transformative, number)

#### PHASE I, INDIVIDUAL

#### IV. Realization

The whole program of realization is to be considered in the following order which breaks into two primary categories or phases: (1) the initial work to be undertaken by the individual prior to his engagement of the aid of associates and (2) original and initial work to be undertaken by the first

group of associates. These two phases may be subdivided as follows.

IV. A. Research and development by initiating individual (prior to inauguration of design action and development action involving full-time employment of others). Inauguration of a general work pattern as a natural pattern coinciding with best scientific procedure to wit: Preliminary

Initiation of diary and notebook

Initiation of photographic documentation

Initiation of tactical conferences

1. Comprehensive library study of accrued developments within the pertinent arts\*

A. past

B. contemporary

2. Listing therefrom of authorities available for further information

A. local, personal contact

B. remote, correspondence

3. Pursuant to information thus gained, calling at suggested local laboratories

A. university

B. industry

\* Pertinent arts to be studied by the initiating individual include:

1. Anthropological data

2. Energetic Geometry, the philosophy of mensuration and transformation, relative size

3. Theory of structural exploration

4. Theory of mechanical exploration

5. Theory of chemical exploration

6. Energy as structure

7. Dwelling process as an "energy exchange"

8. Dwelling process as an "energy balance sheet"

9. Theory of structural complex

10. Theory of service complex

11. Theory of process complex

12. Theory of structural and mechanical logistics

13. Theory of complex resolution

- c. setting up of informative tests for first hand knowledge in own laboratory
- 4. First phase of design assumption
  - A. consideration of novel complex interaction unique to project
  - B. preferred apparatus from competitive field
  - c. design of appropriate flowsheets
- 5. Flowsheets submitted to
  - A. those competitive specialists who have proved helpful in steps b and c
  - B. industrial producers of similar equipment and assemblies
- c. make informative tests for closure of gaps supporting assumed theory
- 6. Submit specifications and drawings of general assembly and unique component parts for informative bids by manufacturers
  - A. second redesign of flowsheet based on available and suggested apparatus, price information, etc.
- 7. Prepare report consisting of diary of above, supported by photographic documentation and collected literature—with trial balance conclusions of indicated economic advantage (which, if positive, will inaugurate Phase II)

#### PHASE II, COLLECTIVE

- IV. B. Design and development undertaking—involving plural authorship phase and specialization of full-time associates. Consideration of relationship of prototype to industrial complex by constant review of principles of solution initially selected as appropriate to assumptions. Adoption of assumptions for realization in design of pertinent principles and latest technology afforded
  - 1. Comprehensive survey of whole sequence of opera-

tions from original undertaking to consumer synchronization

Realization strategy No. 1 by individual (Phase I)

Realization strategy No. 2 by associates (Phase II)

- A. Physical tests in principle of the design assumption's unique inclusions not evidenced in available data
- B. General assembly drawings (schematic) providing primary assembly drawing schedule reference
- c. General assembly assumption, small scale models and mockup full size
- D. Primary assembly, sub-assembly and parts calculations (stress)
- E. Trial balance of probable parts weights and direct manufacturing costs (approximately three times material costs; includes labor, supervision and inspection) and forecast of overall cost magnitudes, and curve plotting—at various rates of production, ratioed to direct costs per part and “all other costs”—i.e. “overhead,” *tool and plant “amortization,”* “contingencies,” “profit”
- F. “Freezing” of general assembly and its reference drawing
- G. Drawing for first full size production prototype commences in general assembly, primary assembly, sub-assembly and parts
- H. Budget of calculating and drawing time is set with tactical deadlines for each
- I. Parts drawing and full size lofting and offset patterns
- J. Prototype parts production on “soft tools” commences
- K. Sub-assembly and primary assemblies replace “mock-up” parts
- L. Physical tests of parts and sub-assemblies with “obvious” corrections and “necessary” replacements (not “improvements” or “desirables” which must be de-

- ferred until second prototype is undertaken after all comprehensive physical tests have been applied)
- m. Photography of all parts and assemblies
- n. Full assembly completed and inspected—cost appraised with estimates of possible “improvement” savings to be effected
- o. Static load tests
- p. Operational tests
- q. Assembly and disassembly tests
- r. Photography of all phases
- s. Packaging and shipping tests
- t. Estimates of savings to be effected by special powered field tools
- u. Opinion testing
- v. *Final* production “*clean-up*” *prototype* placed in formal calculation and drawing with engineering budgeted with deadlines
- w. Parts cost scheduled by class “A” tools and time
- x. Production tool layout fixed
- y. Production tools ordered
- z. Production dates set
- A'. Lofting and offsets produced of full-size-test “masters” and templates
- B'. Fabrication of special jigs and fixtures
- C'. Production materials ordered
- D'. Production tool-jig-fixture tune-up
- E'. Parts and assembly testing
- F'. Field operation scheduling
- G'. Field tools ordered
- H'. Distribution strategy in terms of initial logistic limitations
- I'. Field tests with special tools
- J'. Field tools ordered or placed in special design and fabrication
- K'. Test target area selected for first production

- L'. Production commences
- M'. First field assemblies with power tools
- N'. Maintenance service instituted and complaints
  - 1. alleviated
  - 2. analyzed
  - 3. change orders of parts instituted
- O'. Plans for “new” yearly model improvement run through all or previous steps—for original production
  - 2. Production and distribution velocity assumptions
  - 3. Plotting the assumed progressive mass-production curves to determine basic velocities of new industry
  - 4. Tensioning by crystalline, pneumatic, hydraulic, magnetic means
  - 5. Compressioning by crystalline, pneumatic, hydraulic, magnetic means
- 6. Consideration of manufacturer's basic production forms—relative to proposed design components for determination of minimum steps, minimum tools, and minimum waste in realization
- 7. Establishment of priority hierarchies of effort
- 8. Time-and-energy-and-cost budgeting
- 9. Assumption of industry responsibility for field practices, not only in mechanical and structural, but in economic design.
- 10. Designing for specific longevity of design appropriate to anticipated cycles of progressive obsolescence and replacement ability as ascertained from comprehensive economic trend curves
- 11. Designing with “view to efficient screening of component chemicals for recirculated employment in later designs”
- 12. Maxima and minima *stated and realized* performance requirements per unit of invested energy and experience and capital advantage of tools and structures employed and devised

13. Logistics assumptions, compacted shipping considerations as original design requirement in
  - A. nesting
  - B. packaging
  - C. compounded package weight
  - D. relationship to carriers of all types
  - E. field delivery
  - F. field assembly
  - G. field service and replacement
14. Consideration of tool techniques
15. Consideration of materials' availability
  - A. at time of design
  - B. in terms of world economic trends
  - C. in terms of world potential
16. Consideration of materials ratio per total design
17. Elimination of special operator technique forming
18. Elimination of novel special soft tool designing
19. Numbers of
  - A. types
  - B. repeat parts
  - C. sub-assemblies
  - D. primary assemblies
20. Numbers of forming operations
21. Number of manufacturing tools by types
22. Schedule of forming operations included on parts drawings
23. Decimal fraction man hours per operation
24. Designed-in over-all one-man-ability at every stage of operation
25. Schedule of design routines and disciplines
26. Establish a "parts" inventory of "active" and "obsolete" drawings—from beginning
27. Establish a "parts" budget of "required" designs of "parts" for assemblies and major assembly and general assembly and molds

28. Drawing dimension standards
29. Establish a numbering system of controlled parts
30. Establish purchasing techniques, jig and fixture, lofting techniques

#### IV. C. Public Relations

To run concurrently with all phases of IV. B.

##### 1. Education of public

RULE I: Never show half-finished work

- A. General magnitude of product, production, distribution. But no particulars that will compromise latitude of scientific design and production philosophy of IV. B.
- B. Publicize the "facts," i.e. the number of steps before "consumer realization"
- C. Understate all advantage
- D. Never seek publicity
- E. Have prepared releases for publisher requests when "facts" ripe

##### 2. Realization by Design

#### *A Priori Design Realization Assumptions*

Asking not

why, whither, nor whence  
man-life?

But assuming

the accumulated experience evidences  
that biological phenomena

in general

and man-life

in particular

function in universe

as the anti-entropic,

the anti-random—the simple and complex *organic*—

the systematically convergent phases  
of the comprehensive  
omni energy transformations

and therefore *industrialization*  
constitutes the comprehensive—transformative  
expansion  
of the man-life function in universe—

and therefore the realization that man-life's extension  
into cosmic measurement  
already billionfolds  
the sensory limits of integral faculties  
presages a further successful amplification  
of the man-life function in universe

and therefore  
that the regenerative ability of intellect  
in extension, acceleration, and expansion  
of the extra corporal cosmic-functioning-stature  
of the man-life in universe  
is realizable  
in comprehensive design initiative  
relayed through industrialization

and therefore the function of comprehensive design  
is most naturally and effectively  
preoccupied with omni-abetment  
of the realization in full  
of the potentials of the “individual” complex,  
an organic atomic nebula  
identified superficially as man—

man potential includes  
*regeneratively improving potentials*

of sequential derivative orders  
of increasing advantage of the organic  
over the (random-entropic) chaos growths

“individual” man's highest potential  
may be realized in terms of full interaction  
of all men's potentials—  
ergo man's universal function trends  
to amplify first the pull potential of the individual—  
but inherently multiplicative man-life

therefore  
on first priority  
in design consideration  
is the full realization  
of individual potential  
in order to reach the second derivative—  
full realization for all individuals

keys to design realization  
are the anthropological measurements,  
of the limiting factors  
of corporeal man,  
beyond which extra-corporeal articulation  
of the integral faculties  
may be accomplished by extension in principle  
through atomic-complex trains,  
and energetic transformations  
to cosmic stature advantage

universal conditions of design realization  
commence with the static and dynamic  
dimensions of man  
and his basic behavior involvements  
of which there exists a wealth of data



<i>Typical</i>	<i>Limited to Slow Change Integrally</i>	<i>Subject to Accelerating Change Latest Extra-Corporeal</i>
How high can he grow?	8 ft.	1,200 ft.
How high can he jump?	6 ft.	to the moon
How high can he reach?	9 ft.	to the sun
How far can he see?	100,000,000 m.	$186,000 \times 60 \times 60 \times 24 \times$ $365 \times 1$ billion m.
How far can he hear?	100 m.	1,000,000,000 m.
How far can he smell?	etc.	etc.
How long can he live?	etc.	etc.
Etc., etc., etc.		

All above figures schematic only; for accurate figures  
see world almanacs.

### *The Fuller Research Foundation, 1946-51*

The generation coming of age during World War I acquired an unprecedented range of direct information regarding the physical environment, much of which was unpredicted or even contradicted by that generation's pre-1917 *formal* education. The information was also contradictory to its *informally* inhibited concepts of *reality factors in general* concerning mores, politics, history, economics, and philosophy! The flood of unprecedented information growing out of directly-measured experience increased during the ensuing decade, 1919 to 1928. Outstandingly new was cognition of the *accelerating* magnitude of technical advantage over dynamic environment and conventionalized circumstance opening before man as an unforeseen, yet now integrating harvest, not only of two centuries of scientific discovery accretions but also involving the net and network of *all* knowledge of all history and its derivative technology.

Most important in respect to the present subject-activity—The Fuller Research Foundation, founded a quarter of a century later, in 1946—were those direct experiences acquired in the “twenties” while first initiating development, production and distribution of complex-products and services, embodying the new degrees of post-World War I technical advantage, both in direct design and as indirect changes within arts, economics, geographical and psychological patterns long thought to be beyond fundamental change.

Consequently new strategies governing (A) pre-enterprise-investigation and (B) technique-of-scientific-objectivity-in-complex-prototyping were inaugurated in 1927. The *strategy* and *technique* were referenced only to, and limited only by, the full array of basic data dynamically integrating by world-wide communication of *direct experiment and measurement under itemized conditions*.

“Trial balances” taken by this new strategy and technique, within sub-complexes of the integrating major resource-and-advantage complex were identified informally for the next nineteen years by the designation “Dymaxion”—a “word-portrait” of the enterprise and its philosophy, invented by a “name-smith” retained by Marshall Field & Company of Chicago on the occasion in 1928 of their being host to the public introduction of the enterprise, the designation being thereafter copyrighted and donated to the enterprise by Field’s.

As a result of those first nineteen years’ experience (1927–46) in frequently repeated “trial balance” initiations of prototype engineering; industrial logistics measurement and codification; trend-tendencies differentiation and over-all measurement; progressive strategy reorientation; and self-education and re-education—the comprehensive undertaking was formally incorporated in 1946 (in Delaware, U.S.A.) as the Fuller Research Foundation and was clarifyingly dedicated to:

#### 1. Implementing

commonweal pertinent,  
individually conceived,  
intuitively urged, and  
spontaneously joined  
search, research, and enterprise—  
in the borderline realm of  
“just-not-impossibles”  
where transcendently, as  
alto-cumulus thought-cloud,

orderly trending concepts  
tentatively accrue,  
differentiate and integrate—  
or freely crystallize,  
regarding the furtive,  
future-furthering,  
overall significance  
of continuing experiences—  
as possibly comprising a  
NATURAL FAMILY OF FACTORS  
integrating as a  
*constellation of potentials*  
in new degree magnitude, of  
MAN IN DYNAMIC UNIVERSE ADVANTAGE.

2. Teleologically polymerizing  
to discernible significance  
proportional to cumulative in-put,  
in magnitude, range and frequency  
of direct physical experiences,  
as catalyzed by progressively derived  
awareness-growth, regarding  
“probable” existence of natural laws  
which, though as yet unformulated by man,  
inexorably govern complex behavior, as  
EMPTY SETS OF PRINCIPLES  
GOVERNING ALL POTENTIAL INTERACTIONS  
AND EVOLUTING TRANSFORMATIONS  
(vectorially consequent to any set  
of specific cyclic-unrevellings  
of time-energy 4-way minimum-involvements)  
the significance of which laws  
might, through competent  
COMPREHENSIVE DESIGNING  
be REALIZED

IN IRREVERSIBLE PHYSICAL EVOLUTION  
TECHNOLOGICALLY EXTRAPOLATED AS  
EXTRA-CORPOREAL SIMPLEX OR COMPLEX  
OF TOOLED MAN-PROCESS EXTENSION  
AND AUGMENTATION, thus

3. Cancelling out, as technically “obsolete,”  
and therefore, economically and politically as  
“irrelevant,”  
the whole prospect of  
contemporary impasse and  
threatened total reversion to  
abhorrent destructioning; as consequence of  
lost temper of mentality-and-character alloy;  
of lost comprehension and understanding  
in the broadening horizons and;  
of lost man-competence  
in good will and mutual good faith,  
advantaged by intellect.
4. But, the Fuller Research Foundation only reconnoiters  
in such searching, researching, and enterprise  
within areas of exploration as yet  
beyond the working budgetary scope,  
credulity, enthusiastic curiosity,  
or conscious serious interest, of the  
two major conventional agencies for  
accrediting access to  
organized inquiry, experimental resource  
and facility in Man’s formal undertakings, i.e.
5. *Business*—  
Independent variable  $x$   
and *Government*—dependent variable, function  $y$ —  
only in respect to which latter’s

maxima-minima limits  
the independent variations of  $x$  have significance,  
as each operates relatively and  
inseparably in the first derivative phase  
of *dynamic objectivity*, i.e. *REALIZATION*  
of the integral and differential  
*Logistics of Industrialization*

Though often provoking comments of “stimulating” or “fascinating” by men of *business* and of *government* alike, and though frequently patronized for purposes of developing new publishable “angles,” or simply for conversational refreshment, Fuller Research Foundation undertakings are twenty-four-hour, year-round, all-out efforts, ever and again, unexpectedly receiving serious encouragement of the “hard heads” of both “theoretical” and “practical” going affairs of men. The undertakings have been supported to date, entirely by voluntary workers’ efforts and the “plowed-back” direct income of “windfall” earnings of its principals; for Fuller Research Foundation undertakings are:

*Businesswise*  
outside the scope of  
justifiable pertinence to  
strict budgetary expediency  
in commercial survival strategy, governing  
regenerative profit secretions,  
extractions or reinvestments  
as managed by wisdom, prerogative,  
and latitude of minority integrity  
and as articulated  
by private corporations’  
initiative, self-disciplining,  
good-will-pleasure,  
urge of responsibility,  
competence and timeliness, and as manifested

by inauguration of pilot-plant research  
in undertakings so new that,  
despite scientific classification as  
“*probable*” are as yet commercially  
“*untried*” and therefore classified  
by business as “only possible,”  
and though “clearly needed”  
do not come up  
for consideration in  
these commercial-industrial-research categories,  
at least not until years  
after preliminary processing by F. R. F.

Fuller Research Foundation  
undertakings are also unbudgetable  
businesswise even as measures of “protective cover”  
for business’ *routine* processing of, as yet “scarce,”  
proprietary “probables,” even though  
the latter business ventures are constantly  
hazarded by unpredicted  
velocities of accelerating-acceleration  
in the morphology “sports”  
generated by specialization’s expediency polevaulting  
with the unexpected moment to moment increments  
of integrating technical advantages  
of competitive evolution; for the following negative  
reasons.

As the “routine probables” of business  
and the “approximate certainties” of government  
both fail to materialize on schedule  
or are hazarded by unheralded complications  
arising out of *synergetic interactions*,  
compounding by comprehensive nature,

beyond either the considered or the predictable reaches  
of specialization’s self limiting  
“practical intelligence frames,”  
the unexpected complications are frequently  
blamed by Y upon X, and vice versa,  
as “ill attended and obvious” responsibilities  
within long accepted and now obsolete  
categories of cause and effect “affairs.”

However the dynamically responsible factors “not-  
impossibly” may be the “cumulus of unheeded,  
transcendental integrating” of utterly new patterns  
with which F. R. F. is professionally concerned,  
and regarding which it *may* furnish  
concepts and experimental data, and implications  
conducive to renewed understanding  
and basic industrial strategy advance.

And that meager one in one million chance that  
F. R. F. may be able to furnish this service to society  
appears to justify its existence.\*

(And Fuller Research Foundation undertakings are)  
*governmentwise*  
as yet *invisible* to public policy making  
because as yet lacking the  
approximately “certain” quality

\* Five years after Fuller Research Foundation was founded the Ford Motor Company as *business* came as anticipated to F. R. F. in an emergency for the Geodesic Doming-over of Ford’s Dearborn, Michigan, Rotunda building. Eight years after F. R. F.’s establishment *government* came to F. R. F. in a series of hot, tepid, and cold war defense emergencies for all the Defense Early Warning systems DEW line Geodesic radomes, the U.S. Marine Corps’s air-deliverable advance base Geodesic dome shelters, and the U.S. Department of Commerce’s world-around Trade Fair Geodesic domes.

and “acceptable significance”  
of *common focus*, characterizing  
problems of public convenience,  
as for instance inherent  
in dealing with the “obvious”  
common concern with “weather”  
or with temporary abundances here  
and shortages there, or in the  
public irritating momentums of  
regulations for emergency  
extended beyond emergency.

And because F. R. F. projects must of necessity  
re-examine word tools employed in description  
of new and more comprehensive data,  
and must frequently impose precise limits  
on some words and phrases  
and at other times generalize previously limited  
designations,  
its undertakings also tend to lack  
the *communicable meaning*  
essential to everyday and everywhere  
vocabulary classification,  
and to idea packaging for popular discussion,  
debate, majority conviction, enactment  
and subsequent administration.

Communicable meaning becomes obvious  
only after years of “non-obvious,” yet persistent,  
intrusion of trends as “annoying problems”  
whose increasingly familiar phrasemaking  
is repetitiously resounded either in denouncements  
or in rejustification by legislators or civil servants  
for continuing public support:  
either of comprehensive subsidy,

or of subsidy for complementary functions  
of industrial gestations,  
obviously of commonweal benefit,  
yet inherently inaccessible to,  
or beyond the economic ability limits of  
*private* means and maintenance,  
as for instance  
dredged and buoyed harbors for ships, or  
built and maintained highways for vehicles, or  
airways and airports for planes  
or developed and policed clear channels  
for radio broadcasting systems; or  
in other government relegated subsidy functions  
such as financially underwriting the  
industrial senilities, where  
public necessity but profitless risk  
relooms in the deteriorations and  
economic inadequacies, extensive as  
actuarially unexpected age increments, which  
being “unexpected” and seemingly  
uninterestingly profitless have been  
sorted improperly into nonpriority  
categories, rather than being attended to  
as possibly embodying new and majorly important  
trends and fabulous surprise profits  
which with increasing frequency,  
because improperly diagnosed, burst  
out of their routine service reframing,  
within the pro-and-con clichés  
pulled out and dusted off from out  
yesterday’s “precedented” or “enacted” frame storage.

*A Comprehensive Anticipatory  
Design Science*

*To Dr. Jonas Edward Salk*

World around thoughts embrace  
Dr. Jonas Edward Salk  
in spontaneous gratitude  
for his full-scale realization on our behalf  
of one of the most magnificent potentials  
of the man-process patterning in universe,  
to wit: demonstrably important competence of man  
as a *consciously* contributing participant  
in the constantly transforming evolutions of universe,  
even in the evolutionary transformations  
of men by man, and of man by men;

and as men demonstrate competence  
and responsibility as initiators  
of comprehensive, anticipatory design science—  
as has Doctor Jonas Salk—  
they gear men's conscious efforts  
into nature's ceaseless evolutionary processes  
thereby, progressively converting those inevitable  
and heretofore misapprehended  
and oftentimes vainly fought processes

from painfully dissynchronous  
to happily synchronous events,

and thus do nature  
and competently self-disciplined initiators  
such as Doctor Salk  
now transform man's omniapect,  
internal and external, direct and remote,  
biological and ecological, regenerative processing  
and all the latter's new—or fading familiar—  
pattern identifications  
as well as the word formulations  
uniquely describing the newly discovered

and the responsible initiators are thus bringing about  
the complete re-orientation of man  
in respect to all of his integrating processes  
of apprehension, comprehension, and communication  
of fundamental tactical criteria  
governing survival, growth, and the enjoyment of  
universe

and the initiators also render progressively achievable  
though as yet only in meager degrees  
the conscious enjoyment by man of earned relaxations  
into a post-Eden majority innocence,  
of a paradise at least partially re-occupied  
without mandatory sacrifice or relinquishment  
of his dearly won *conscious access*  
to his *innate intellectual faculties*  
and to his post-natal, environment stimulated  
epistemological functioning

for the fleeting revisits of paradise are  
intellectual-integrity flown missions

instrumentally permitted within  
the almost static-free omnirange navigation  
directionally oriented and accelerated  
by spontaneous or reasoned  
humility, love, dedication, tolerance and faith

and the instrumented revisits to paradise  
show it to be  
a comprehensively co-ordinate,  
dynamically equilibrinous earnable vantage  
ever tuneably tenable  
amidst the reciprocable complexities  
of evolutionary, wave-frequency patterning growths;

and man is as yet  
but fractionally informed regarding those complexities,  
and the fractional information is furnished only  
by those wave frequencies which are directly  
apprehendable  
exclusively within man's very limited  
sensorial spectrum frequency bands—  
tactile, olfactoral, aural and optical—

and these sensorial frequencies in turn occur  
only as miniscule trace zones  
and only at the middle ranges  
of the now partially explored, obviously vast  
and inferentially extensible  
electromagnetic-frequency spectrum

and the break-out of man's  
pattern-apprehending processes  
from within his directly tuneable  
sensorial spectrum limits  
and his break-through to apprehension of patterns

occurring within frequencies infra and ultra  
to his naked, sensorially tuneable, perceptivity limits  
first happened when man  
acquired micro- and macroscopic lenses  
and saw organized patterns clearly existing  
too small or too large for previous apprehension  
by his unaided optical faculty

and after this optical extension,  
man became progressively excited  
by his aurally dominant  
sensorial experimentations and discoveries  
in octave step-ups and step-downs  
of tonal-frequency-patterning *transformations*  
lying within a variety of schematically tuneable  
harmonic scale frequency patterns  
each with minor and major mode frequency patternings  
whose *key* and *mode* frequency-patterning relationships  
were intra-*transposable*  
by man's consciously disciplined modular co-ordination  
both of which *transformations* and *transpositions*  
he found to be transcendental to and secondly derivative  
of his already long-developed co-ordinate abilities  
in frequency modulation of cadences

all of which disciplined co-ordinate articulateness  
in respect to complex harmonic relationships  
was implicit in frequency phenomena and  
was discovered but not invented by man  
while he explored  
entirely within the sensorial frequency spectrum limits  
of his innate tuneability ranges

and the beckoning zones  
of tonal-twilight and pattern-fade-outs

occurring at the indefinable limits  
of the various sensorial-to-nonsensorial  
terminal frequency range experiences  
unique to individual men  
were combined and compared  
and eventually furthered man's curiosity  
and thereby, his developed success  
in the intuitively formulated experimentations  
through which he progressively discovered  
for instance, with tuning forks  
that the step-up and step-down frequency  
*transformations*  
and schematic *transpositions*  
were equally permissible between  
the sensorial and nonsensorial frequency ranges,  
or even directly between  
the nonsensorial spectrum's octaves and keys,  
as within the exclusively sensorial tuneability limits,  
and man's experience-excited explorations,  
ever opening with intuitive formulations  
in respect to the gathering glimpses  
of new pattern-integrities,  
led to Hertz' discovery of the omnidirectional,  
omnipervasive, electromagnetic wave phenomena  
and confirmation of Maxwell's experimentally-  
informed mathematical generalization  
of the operational laws governing  
these infra and ultra as well as sensorial  
integrities of nature's wave-frequency patterning

and thus did man discover  
that physical principles are  
utterly abstract behavior relationships  
existing only as reciprocal-event patternings



which persist independently of any instruments  
which man may or may not employ  
to detect, chart, measure, and harness  
their unique characteristics

furthermore, man discovered that the integrity  
of the utterly abstract “physical” principles  
existed independently  
of either the sensorial range  
or of the nonsensorial range  
frequency events  
whose familiar patternings are interrupted  
by the super-imposed unique patterning  
of the thus discovered  
reciprocally permitted and purely abstract  
yet communicably identifiable “principles”  
of energetically regenerative  
reformulations and transformations

and the identity of the purely abstract  
and superimposed  
unique patterning of principles  
interweaving or overlaying other principles  
may be consciously communicated to self or others  
by means other than mathematical formulae  
for instance, by the visual cognition  
and “operational” description of the patterning  
of circularly regenerative waves  
ever propagated by the dropping of a stone into water

which circularly propagated *waves*  
though circumferentially expanding  
outwardly around earth’s water surface  
and away from the stone-into-water contact point

do not involve circumferential expansion  
nor radial motion  
of the individual water molecules  
for the molecules are only locally displaced  
moving only *inwardly* and *outwardly*  
in respect to earth’s center  
thus, to progressively accommodate the “apparent”  
circumferential growth “motion” of waves  
which being only apparent  
are purely abstract  
synergetic motion-patternings  
for they are not the *individual* motion patterns  
of the separate water molecules  
taken by themselves  
but are motions of the  
*co-operative pattern of sequence effects*  
of the aggregate of separate, local, nonsimultaneous,  
in-and-out, molecule displacement events

and the complex information regarding  
the integrated sequence of co-operative local events  
is relayingly communicated to the observer  
by an entirely separate, aggregate set of event-  
patternings  
other than those upon which he is prone  
to concentrate his attention  
and upon which he bases his spontaneous explanation  
of the apprehended experience

for the synergetic pattern information  
regarding the circularly-propagated principle  
of entirely abstract waves  
thereby, apparently generated in water  
is only relayed to the observer  
by the patterned interruptions

of the observer's optically tuneable spectrum  
of discernible frequencies

for instance interruptions of  
the optically tuneable,  
integratingly scanned,  
blues of the skies  
and browns of the ship's mast or wharf pilings  
whose reflected frequency patterning "serenity"  
is interruptingly distorted  
to report other frequency scanning patterns

for instance, of the brown groups of frequencies  
of the visible, sun-propagated, radiation spectrum ranges  
either inhibited or bounced off the mast or pilings  
and ricocheted again off the water's surface  
into man's eye lens  
and snakingly scanned amongst  
the water-reflecting blue frequencies  
refractively sieved by the atmosphere  
and known as the "sky"

all of which complex of interrupted  
frequency-patterning sequences  
synergetically chart and report  
the progressive phases  
of the precessionally regenerative  
abstract geometry of wave-circles  
expanding circumferentially,  
in apparently visible principle only  
amongst the only in-and-out-bobbing water molecules

and the total complex of wave-relayed information  
is never "seen" directly by man and  
would remain optically unapprehended

and utterly uncomprehended  
by the potential observer  
were it not for his light-wave-frequency receptivity  
which fact is proven by "night"  
whose sound-frequency patternings as a "word"  
means that the optically tuneable spectrum ranges  
of electro-magnetic wave phenomena  
have been totally interrupted  
until further notice

during which hiatus  
no water waves can be "seen"  
though their splashings can be heard at "night"  
equally as well as in day

and the complex of information-relaying  
by means of a series of patterned interruptions  
which step-up and step-down  
the relative velocity of cyclic wave travel  
of the interference propagated  
and angularly modulated  
new wave series patterning  
is known in the aggregate as a "carrier wave" relay

and this complex of pattern transforming  
is superficially and erroneously apprehended by man  
as consisting of "normally" and "naturally"  
continuous behavior of various "solid things"  
some solidly liquid things, some solidly gaseous things,  
some solidly wooden, metallic or crystal things  
all of which "solid" facts  
he finds to be affected  
and interrelated by a great deal  
of what he concedes to be

inherently-nonsensorial "stuff"  
ergo, to his "solid thinking" requirement  
inherently "incomprehensible scientific phenomena"  
which are in some ways both traceable and manageable  
through "incomprehensible mathematics"

and so vividly does man imagine  
that "solid," "substantial" finiteness  
to be implicit in his tangible experiences  
that he very readily participates  
in the "reality" of a nonmoving "moving picture"  
though this apparent motion is itself  
only the ever-recurrent principle  
of a non-man-apprehended "carrier frequency"  
in this case of static frames  
of light sieving patterns  
separately viewed but at a periodic continuity frequency  
swifter than the cyclic frequency  
of visual module tuneability

which sieve-carrier frequency-sequence  
in turn intercepts  
another non-man-apprehended carrier pattern  
beamed as a radiation complex  
in the man-visible  
(but non-message-carrying) spectrum ranges  
which two separate carriers  
of joinably meaningful frequency patterns  
men combine periodically to produce  
new synergetic interference patterns  
thus to report to man, upon a truly blank wall  
yet in familiar moving "picture" recalls  
information regarding man's illusion vulnerability  
without, however, stimulating

man's frequently processed realization  
of the significance of that report

and the compounding complex of relayed illusion  
and consequent misapprehending is chiefly caused  
by the relative incompatibility  
between the ultra-high frequencies  
of the optically tuneable light-wave apprehensions  
and the approximately static modular encounters  
of the tactilely manipulated apprehensions  
for the optical frequencies are vastly accelerated  
in respect to the frequency of encounter  
of individual-memory-differentiating experiences  
as apprehended only by man's primitive  
and dominant tactile faculties

and the relative incompatibility  
of the tactile and optical frequency modulators  
caused man to choose one or the other  
as his basically dependable tool of apprehension

and as a result of his age-long choice  
of the tactile faculty  
as being the most reliable for his practical needs  
he employs the high-frequency  
and high-speed optical faculty  
only as a tool of verification  
of his tactilely received and referenced  
brain-cataloging of primary information  
only in respect to which  
his subconscious reflexing orients  
its "spontaneous" judgments and actions

wherefore, man "sees" only  
the arrangement of external conditions

as they have been discovered  
and verified by his touch faculties

thus, for instance, man “sees” and pictures  
the hand touchable limits of other men  
as defined only by their tactile profiles  
rather than by their respective aural  
or olfactoral profiles,  
or by the profiles-of-influence  
of their intellectual communications  
which latter are their only real profiles

men are known as being six feet tall  
because that is their tactile limit;  
they are not known by how far we can hear them,  
e.g., as a one-half mile man  
and only to dogs are men known  
by their gigantic olfactoral dimensions

and though Democritus’ intellectual profile  
reaches through 2,000 years of time  
to permeate the intellect  
of any who uses the word “atom”  
few of the atomic age people  
are as yet spontaneously dominated  
only by the intellectually apprehended  
dimensional ramifications of experience

and in respect to the tactile domination of man’s senses  
and the few-feet-per-minute velocities of *tactile*  
apprehension  
the 186,000 miles-per-second velocity  
of the *optical* spectrum-color-phenomena-apprehending  
is an *incredible* velocity

and therefore, it is spontaneously and erroneously  
interpreted  
by the tactilely enslaved individual  
only as an “instantaneous” phenomena

wherefore, the erroneous concept of “instantaneity”  
causes man to discount the billionths of seconds of time  
required for light frequencies to bounce from external  
objects  
thence to travel to his optical-reception-relay-system  
and through patterns of interrupted carrier frequencies  
of the nervous system  
to be scanningly reassembled  
and erroneously recorded to himself  
as apprehended not within his internal brain “TV”  
which is the approximately “accurate”  
operational statement  
but only as if apprehended *at* the *external* points  
of the reflected visible spectrum radiation

all of which is as erroneous as would be  
the hypothetically conceivable progression of cognition  
of possible future generations of humans  
who have become so accustomed to “lazing”  
before their TV sets  
as to begin to “see” the TV-reported events  
as spontaneously occurring only at the studios  
or other points of TV camera pick-up  
with all the subsequently intervening  
relay of events and apparatus  
submerged in the limbo of subconscious co-ordinations  
along with the general organic processes  
of those solid-future Teevians

however, despite the incomprehension of  
 precessionally-operative frequency relays  
 by present or future Teevians,  
 the *effective abstract reality*  
 of exquisite principles—  
 characterizing all these accommodatingly  
 interactive wave-frequency principles—  
 is such, for instance, that despite the local  
 and uniquely directional limits  
 of the stone-plunged bobbing of the water molecules—  
 in motions which are exclusively in directions  
 inward and outward from the center of the earth—  
 there results the progressively precessed  
 synergetic wave patterns  
 appearing as wave “hills” of water  
 that move excentrally and in principle only  
 around the earth and at right angles to  
 the exclusively in-and-out bobbing directions  
 of the individual water molecules  
 and the *reality* of those synergetic  
 and truly abstract water “hills”  
 provides circumferentially moving water slopes  
 in respect to earth

and down these water “hills” outwardly moving slopes  
 “surf-boarders” may coast, yielding to gravity  
 slant-wise of the waves’ abstractly “rolling” fronts  
 at such an angle that the rate of coasting  
 inwardly towards earth’s center by the “surf-boarders”  
 is synchronizingly designed and co-ordinatingly  
 governed  
 by the “surf-boarders” angular leaning  
 to match the rates of only “outward” local motions  
 of each of the individual water molecules  
 in respect to earth.

and that neat matching of the rates  
 of inward and outward motions  
 by angularly co-ordinated discipline of the surf-boarder  
 translates those co-operative radial motions  
 in respect to earth’s geometry  
 into circumferential arc in respect to earth’s geometry  
 and this action which results in pattern transformation  
 at 90° to the lines of co-ordinated in-put action  
 is known as precession

and the precessional principle causes the surf-boarders  
 continual re-elevation outwardly from earth  
 even as he spends his gravitational advantage  
 coasting constantly in directions circumferential to earth,  
 despite, that the water molecules do not move  
 circumferentially in respect to earth’s geometry

except when low atmospheric pressure centers  
 vacuum draw—not blow—the wave tops  
 into cresting curls which move  
 side-wise along the wave-tops  
 at 90° to the drafting atmosphere’s  
 line of tensional force  
 thus, in synergetic precessional sequence  
 of progressive angular displacement events  
 to carry the cresting-formed foam bubbles  
 in minuscule surf-boarding tracteries to  
 carpet the oceans with “spindrift”

and porpoises are the royal protagonists  
 of the synergetic precessional surf-boarding realms  
 for porpoises employ and enjoy  
 these purely abstract and integratable principles  
 as they languidly, almost effortlessly coast

in love making couples  
around the cresting wave slopes encompassing earth

and thus do the synergetic forces—  
regenerated in pure principle—  
continually inter-transform  
all the co-operative synergetic patternings of universe  
in an increasing plurality of directions, velocities,  
and newly organizing self-interference patternings  
some of which are persistently disassociative  
and some of which are persistently associative  
and all of which are partially both,  
though always predominantly one or the other

and the predominantly associative resultants  
of self-interference patternings  
which precessionally regenerate as almost exclusively  
inwardly shunted chordal patternings  
of systems of periodic self-interference  
are known to man's "common sensing"  
in superficial, solid-thing apprehending terms  
as the "basic building blocks of universe"—  
the "chemical elements"—  
which, latter, however, the recent decades of experiment  
have taught him, are not the "basic blocks"  
for the chemical elements in turn  
also consist of a variety  
of what common sense now speaks of  
as fundamental nuclear "*particles*" of the chemical elements

rather than speaking of accurately as consisting in  
purely regenerative abstract principles,  
which in fact they are,  
and the specialist professor of mathematics,

who is otherwise as confounded of mind  
by the tactilely referenced common (non)sense  
as is any other individual  
who does not profess special ability in mathematics,  
finds these primary "elemental"  
and nuclear particle behaviors  
to be most reliably treatable  
through the integrated operations  
of purely mathematical process

without, however, "sensing" why  
and therefore asserts that the mathematics  
had no relationship whatsoever  
to the solid realities which they ignorantly acknowledge  
as characterizing their mathematically uncomprehended  
everyday "common-sense" experiences

and the inwardly-shunting vectorial-chordings  
of unique frequencies and angles  
of the periodically self-interfered patternings,  
of the thus inherently associable events patterning  
identified as the "chemical elements,"  
are similar (but only very *complexedly* similar)  
in their synergetically resultant pattern behaviors,  
which operate at infra and  
ultra sensorially detectable frequencies,  
to the *sensorially detectable* patterning synergies  
known by man as "knots"

"knots" as made by men in ropes  
through self-disciplined reproduction of principles  
of regeneratively associable events  
known by man's sound-frequency patternings  
as "tying-in" of the "knots"

and the simple principle of a slippable knot  
may be tied into an end  
of a manila fibre rope  
into whose other end has been spliced  
a cotton rope into whose other end in turn  
has been spliced a nylon rope  
and the slippable knot may be slip-forwarded  
from the manila rope to the cotton rope  
and thence to the nylon rope  
without in any way altering the knot's  
synergetic integrity of total pattern behavior

thus informing man that the knot  
is neither manila, cotton, nor nylon  
but only an utterly abstract "physical" principle

in this case  
a precessionally regenerative physical principle  
of *self-interferences* resulting as  
inwardly shunting forces  
interacting as self-tied-up holding patterns  
ergo, as *inherently associative* patterning forces

and all the first ninety-two chemical "elements"  
are the finitely comprehensive set  
of purely abstract "physical" principles  
governing all the fundamental cases  
of dynamically symmetric vectorial geometries  
and their systematically self-knotting  
precessionally regenerative in-shunting events

and thus man is taught in turn by experience  
that "physical" means pure abstract principle  
and that the information

describing his experience  
was relayed to his awareness only in principle

for the knot was made "visible"  
and superficially discernible  
only through the optically tuneable variety  
of "yellow" frequency patternings followed by "whites"  
which, though only tuneably received,  
are superficially misidentified by man  
as the "thing" complex: "rope," comprised of  
the sub-"things": "manila" or "cotton"

and all the chemical elements  
are such patterns of regenerative principles  
and all chemical compounds  
are associable sets of regenerative principles  
transcendental—in relative magnitude of event  
frequencies  
and synergetic constellations—  
to the magnitudes of nuclear events

and all the man-identifiable life experiences  
are—in their unique local patternings  
as individual assemblages—  
reviewably sortable and identifiable  
as a progressively transcendental hierarchy  
of synergetic patternings  
at various multi-complex degrees of  
incorporated sub-associabilities

and man is a super galaxy  
of galaxies of slipknots  
sliding sum-totally along  
in a complex of reciprocal slip-knot principles

upon a complex of associable, limitably tuneable  
and sensorially apprehendable  
in-knottings of slippable principles

and man's "individual" complex-pattern integrities  
are in principle immortal  
for man is naught but a complex of associable patterns  
and as indestructible as the most abstract  
of mathematical principles

in respect to which mathematical principles  
man has been tuneably implemented  
to cogitate and apprehend in  
synergetically structuring principles of  
infra-sensorial, sensorial, and ultra-sensorial  
frequency spectrum magnitudes

ergo—man is not a solid thing  
nor is he the hundred or so "pounds"  
of measurable energy, tied-up in knots,  
at any one moment  
nor is he the cumulative total of  
approximately one hundred tons  
of foods, liquids, and gases  
whose complexes of patterns-within-patterns  
he "individually" associates metabolically  
in the progressively overlapping synergetic process  
of corporeal and extra-corporeal events  
which he identifies as the "life time"  
patterning of men

nor is man the hair or the skin  
which he progressively propagates as directional  
or omnidirectional precessional waves  
and progressively cuts off or rubs off

and into which unique wave patterns of hair and skin  
the complex wave knot complexes  
called vegetables, liquids, and gases are  
disassociably and associably transformed

and by virtue of those tuneably apprehendable  
frequencies of wave propagation  
we "sensorially" apprehend as "pink" and "blonde"  
the otherwise utterly abstract  
pattern-integrity *man*,  
even as we apprehended  
the relatively simple pattern integrity "slipknot"  
by the yellow frequency nuances  
scanned into our brain-set as "manila rope"  
of which the knot was but a transformative principle  
nor is man any one of a few  
of his complex pattern "parts"  
all of which he is progressively discovering  
may be substituted for by organic or inorganic  
complexedly patterned "interchangeable parts"  
any of which he may also exchange with other men

man is a "life long" visible patterning integrity  
which both corporeally and extra-corporeally  
redistributes and synergetically transforms,  
in precessional patterns permitted in principle  
which he processes most often  
with *subconsciously* co-ordinated  
reflex routines, but which he now  
at this unique threshold moment in history  
*consciously* participates in  
to meagerly successful degree

whose directional resultants often  
are precessionally "impulsive" in principle



as are the locally dancing water molecules  
impulsively resultant in the abstract reality  
for instance of the swift porpoise gliding  
and some of which resultants in principle  
are known as the "realitics" of energy  
which are identified as a variety  
of unique "energy" effects

some of which abstract principle "energy" behavior  
man precessionally converts into "work"  
which he applies to the progressive  
conscious and subconscious participations of men  
in accelerating the local even patternings  
of apparently ever totally self-transforming  
patterns of evolution

thus, man is not the vegetables he eats  
nor the water he drinks,  
nor the gases he breathes

man is pure abstract pattern integrity  
made visible to other men  
by man-tuneable frequency relays  
of complexedly interlocking but  
reciprocally accommodating patterns—  
representing every patterning principle of universe  
cohering as the comprehensive integrity of  
pattern associabilities at mid-spectrum ranges  
whose comprehensively and synergetically  
surprising results  
are known to men  
as uniquely "individual" man

and man is the most complex of  
individually differentiable

regenerative patternings—  
as a synergetic set of principles  
of periodic and accumulative behaviors—  
as yet tuneably apprehended by man  
in all of his universe,  
with Universe taken to mean—  
*the aggregate of all men's, all-history  
apprehended, and communicated experience*

and individual man is  
an alternate-integral-function  
of the total regenerative  
yet totally evolving  
reciprocal integrities of universe  
ergo, individual man  
may at his own will and discretion  
be at any one moment either a "standby" or an  
"active"  
function of universe

and man as a complex inventory of associable principles  
has but one matching counterpart (other than man)  
in all the comprehensive synergetic complex of universe  
which matching counterpart *is universe* itself

for the cumulative totals  
of the progressive chemico-physical  
inventorying of universe  
show that the relative percentage abundance of each  
of all the co-operative patterns including those  
known microcosmically  
as the chemical elements, molecules, crystals, cells, *et al*  
as well as those known macrocosmically  
as planets, solar systems, galaxies, and super-galaxies  
more nearly matches the *relative abundance inventory*

of all known principles of patterns comprising man  
than does any other individual system's  
relative abundance complex in universe

and man as pure complex  
of the regenerative patterns' integrities  
appears to be not only immortal in principle  
but also to be a *miniature magnitude universe*  
as possibly the compactness-limit-phase  
of the most comprehensibly associable  
accommodating compactness of universe  
ergo, each and every individual man  
appears possibly to be  
one of the *individual sequence integrities* of  
complex patterning consequences  
of all the alternatively permitted  
individual freedoms of equally elective  
patterning of total universe

and inferentially, man is as indestructible  
and as irrevocable  
from the total patterning of the universe  
as are the complex  
of abstractly co-operative "physical" principles  
of the patterning of total universe itself

and no man has ever seen outside himself  
and all the universe of total man experience  
becomes progressively comprehended and  
exploratorially integrated only in his questioning mind  
as he becomes progressively excited  
by experiences of integrating principles

and only within his mind-self  
does man meet and deal

with all the challenges of integrity itself

and in the swiftly organized experimental amplification  
of his scientific break-out  
from the sensorial frequency limits  
of communicable understanding  
man has empirically identified and scientifically charted  
frequency universe patternings  
the preponderance of which  
now swiftly increases  
in the ranges infra and ultra to  
man's direct sensorial tuning

back into which sensorial ranges, however  
he relayingly steps-up and steps-down,  
transposes and scanningly reorganizes  
as sensorially readable  
those increasingly vast  
infra and ultra sensorial frequency patternings  
whose magnificently visible significance as patterns  
frequently inform man  
regarding the operative significance  
of the fragmentally apprehended patterning events  
as they relate to the "principles" discovered  
in events experienced only  
within his minusculely limited  
sensorial spectrum perceptivity

and the nonsensorial frequency-patterning  
thus discovered  
are, moreover, frequently complicated  
by interference occasioned  
and precessionally operative  
angle and frequency acceleration modifications  
of the periodically regenerative complex phenomena;

ergo: man's self-knowledge  
may only be acquired and expanded  
through progressive and comprehensive  
experience-won data  
which have been operationally martialled,  
examined, reviewed,  
and thereafter distilled into generalized laws,  
governing regenerative pattern relationships  
which we speak of as "principles"  
even though the principles  
accrue only to a plurality  
of fragmentarily overlapping  
experience episodes  
in which the individual experiences are inherently local  
and spontaneously biased  
because identified only with  
the circumscribed fact-content  
*in-side—ergo: one-side—the visible horizon*

however, the local experiences are also always within  
the greater universe's frequency patternings  
ever progressively discoverable  
as rounding out systems of patterns  
*out-side* the horizon, outside-inning universe,  
infra and ultra to our sensorially conscious  
tune-inability ranges  
of those nonsensorial wave propagations

and the instrumentally-relayed comprehensive data  
is found to be characterized by an apparently constant  
regenerative reciprocity and synergetic integrity,  
an omnioperative patterning  
permissible in every respect  
of our reviewable experiences,  
only as constituting the product of

anticipatorially designing intellectual wisdom,  
comprehensively, permeatingly, exquisitely finite,  
relative to man-mind limits

and the comprehensive and permeative  
synergetic intellectual integrity  
is from time to time tune-inable by man  
in newly greater compass or finer degree  
only in unexpected moments  
when man is utterly preoccupied  
in self-dedication to his experience inspired faith  
in the omniexistent, ever-presence  
of the greater and greater integrity  
ever implicit in the multiplying clues  
both of happenstance  
and of disciplined experimental fill-ins

all of which gradually integrate objectively  
to regenerate man's faith  
in the further extensibility  
of the continuum of infra and ultra discoverable  
realms of synergetic orderliness  
always anticipatantly synchronizable with  
and fulfilling the requirements of  
the already discovered and complexedly evolving  
a priori spectrum frequency "realities"  
of the limited sensorially-tuneable patternings

and though ever and only "approximate"  
in apprehended and comprehended behavior data  
the faithfully attained new patterning "reaches"  
are effectively convertible through the generalized laws,  
to provide further regenerative  
preoccupations, experimental excitations,

and relative gains of consciously effective participation  
in the greater and more exquisite realms  
of the comprehensively patterning integrity

and as each and every unpredictable  
and unprecedented subjective experience  
of the progressive entry into  
the newly-dawning frequency tuneabilities  
of man's ever greater infra and ultra ranges  
of conscious, objective participation in the total patterning  
of reciprocal and complimentary integrities occurs,  
the experiencing individual gains  
tacit re-validation of his faith  
that the comprehensively comprehending,  
anticipatorially providing,  
omniintegrity patterning  
is obviously anticipating in so competent degree  
as in no way to require the proselytizing service  
of limitedly conceptioning individuals  
in speciously preoccupying persuasion of others  
in respect to the comprehensively anticipating integrity

which proselytizing when practiced  
paradoxically results in abandonment  
of the proselytizing individual's  
direct pursuit of integrity  
and substitution therefor  
of progressively ritualized declarations  
of thought numbing formulae  
originally adopted to package-up the proselytizing  
and thus to convert it  
into a predictably manageable  
sales campaign routine  
of minimum effort  
and corresponding minimum challenges

to the participating individual's intellectual faculty  
and requisite integrity of its employment

and any surmise that this  
present recording of thoughts  
in itself represents  
a proselytizable "package"  
is refuted by the discoveries  
of principles inherent in  
the thus far totally experienced  
evolutionary patterning of universe  
which include the eventually utter  
transformation by evolution  
of any and all the familiar  
or nonfamiliar aspects  
of the total evolutionary processes  
together with man's apprehension  
and tentative comprehension  
of any or all of the significance  
of its phases of process  
ergo this and any other  
tentative inventory and  
approximate appraisal  
are inherently obsolete  
in due course  
which due course constantly accelerates  
making the process of inventorying  
progressively difficult  
and also progressively innocuous  
as a tool of exploitation  
of man's innate assurance and faith  
in the comprehensively operative  
anticipatory integrity of experience  
and the finite wisdom of its total  
conceptual scheme

wherefore individuals receiving direct validation of faith  
tend humbly to grateful silence;  
and the enormous growth of faith  
is historically documented  
primarily by the compounding accomplishments  
of silent individual dedications  
either to the effectively anticipated elimination  
of man's recurrent sufferings,  
or to design solutions by physical instruments  
competently anticipating man's survival,  
process and enfreshment needs

and all the concomitant  
freely investible life quanta gains thereby induced  
are realizable by all men  
as consisting of newly augmented degrees  
of amplified freedoms of thought realizations  
and as conscious enjoyments of the enlarging potentials  
and permitted ramifications  
of man's thoughtfully initiabile, furthering commitments  
within the omnideveloping regenerative integrity—  
universe.

### *Introduction to Omnidirectional Halo*

The useful but infrequently used word *epistemology* means *science of the thought processes*. A total epistemological reorientation and, to the best of my knowledge, a unique philosophical reconceptioning, regarding the regenerative constellar logic of the structuring of the universe (both as a new cosmology and as a new cosmogony), seem to have followed gradually upon my hypothetically-initiated querying regarding the possibility of formulating more comprehensive and symmetrical statements regarding dawningly apparent natural laws. I intuited in irrepressible degree that such a potential formulation might be accruing and harvestable in all of our acceleratingly-reconsidered and progressively-integrated world-around, all-history experience as now only diffusely inventoried at the middle decades of the twentieth century.

Out of multi-overlaid experience patternings there sometimes emerges an awareness of what we may call a *coincidence pattern*—a localized thickening of points. These emergent patterns of frequency congruences and concentrations display a unique configuration-integrity which has up to now been so dilute in any one experience as to be only invisibly common to many differentiated or special experiences, e.g., a pack of one hundred 4-inch by 5-inch file cards each riddled with hundreds of different sized small holes. Each card appears to be chaotically patterned with holes. However, when the cards are stacked with edges

aligned three holes in each card are vertically aligned; all others are obscured by blank spaces on one card or another. A triangular pattern relationship of the light coming through three tubes in the stack of cards is now lucidly conceptual. To such persistently emergent, uniquely mutual, coincidence-patterning relationships as the same triangle array of holes in each and every card we may apply the term "pattern generalization" as used in a mathematical sense, in contradistinction to the word "generalization" as used in the literary sense. The latter often means a too-ambitious subject range which consequently permits only superficial considerations of any specific case data.

When the uniquely emergent generalized patternings become describable by us in *mentally regenerative conceptual terms*, as completely divorced from any one of the specific sensorial conditions of any of the special experiences out of which they emerged, yet apparently, as seen in retrospect to have been persistent in every special case, then we may *tentatively assume* such unique mutual pattern content to be a *generalized conceptual principle*, as for instance the conception of *tension* as opposed to *compression* independent of textures, smells, colors, sound, or size of any one tension-dominated experience.

It is in just such an epistemological process that we discover that size is not a generalized conceptual principle. Whether referring to the size of an object in respect to other objects or the *sizes* of any one object's subdivision, *size* emerges exclusively as a *frequency* concept uniquely differentiating-out each "specialized case." Generalized shape conceptioning is independent of size. A triangle is a triangle independent of size.

When a *second order* of pattern distillation as a *generalized conceptual principle* emerges, but this time exclusively from the emergently-induced *co-ordinate consideration* of a *plurality of generalized conceptual principles* themselves, each independent of any special case sensoriality, and in such a regeneratively-recognizable manner of patterning as to provide a means of mathematical accounting and therefrom a tentative forecasting

capability, not only of generalized developments but also of special forward experiences in the terms of specific sensorial conditions, and those calculated forecast conditions materialize, and the forecasting capability is subsequently verified by recurrent experimental demonstrations under controlled generalized conditions, then we may tentatively assume that we have discovered at least a clause of "natural law." For example, we tentatively assume that *radiation is generalized compression* and that gravity is *generalized tension* and that tension and compression are inseparable, precessionally-complementary functions of universal structure.

Newly recognized *generalizable principles* seem emergent in unprecedentedly accelerating accumulation as reported from the instrumentally extended range, velocity, and exactitude of special case experiences in the most recent moments of history's scientific venturing. The manywhere local probings have been meticulously organized and reported regarding measurable relationships and rates of changing relationships throughout the vast macrocosmic and exquisite microcosmic angle and frequency universe events both infra and ultra to man's direct tuneability yet instrumentally tuneable and transformably readable within *regeneratively informative tolerance* despite inherently limited observational exactitude.

Out of cumulative patterning overlays there emerges what seem to be generalized principles apparently governing all associative and disassociative transformings and their resultant regeneratively persistent hierarchy of constellar configurations. These hierarchies of constellar configurations disclose in turn a hierarchy of dynamically symmetrical constellation phases and their respective maxima-minima, asymmetric and complementary, accommodative transformabilities which are apparently permitted within an omnirational, omnidirectional, omniequieconomic, energy-accounting, co-ordinate system of universe. This omnirational, arithmetical-geometrical accountability is of such sublime simplicity in contrast to the awkward "mathemat-

ics" of all known yesterdays as to have occasioned an almost universal incredibility and nonconsideration of its potential significance though it has been in disclosure for one quarter of a century.

This co-ordinate system may be described as an *isotropic vector* system; that is, a generalized Avagadro system in which the energy conditions and relative quanta ratios are everywhere the same yet multi-differentiable in local patterning aspects, which aspects are interchangeably emergent without altering the comprehensive energy equilibrium or its unitary totality as implicit in the *Law of Conservation of Energy* by which it is assumed that energy may be neither created nor lost.

The discovered co-ordinate system is apparently governed by generalized laws, some of whose mathematical equatability I have been allowed not only to discern (as far as I know for the first time by anyone) but also to codify and translate into unique structural realizations. This codification governs the total co-ordinate abundance ratios of the unique pattern aspect relationships of uniquely irreducible co-operative function aspects of locally nonsimultaneous events and their equilibrious pattern totality.

Discovery of the primary and corollary laws of constantly co-ordinate relative abundance of pattern function-aspects of totality as an omnirational regularity governing all local patternings of universe as a minimum-maximum family of complexedly complementary yet uniquely identifiable conceptual function-patterning relationships followed upon intuitive formulations of the seemingly most comprehensive self-querying question I was capable of propounding to myself regarding possible detectable pattern significances accruing to progressive life experience integrations and overlays.

That most comprehensive question was, "What do you mean by the word 'universe'?" "If you cannot answer, you had best abandon use of the word 'universe' for it will have no meaning." My intuitively-adopted rules for self-questioning and answering

were that the answer must be made exclusively from man's experience patterns. I learned many years later that the Nobel physicist Percival Bridgeman had identified this same rule adopted by Einstein as "operational procedure," subsequently a much-abused phrase. My answer (or discard of the word "universe" as a communication tool) was operationally inherent: "Universe is the aggregate of all consciously apprehended and communicated (to self or relayed to others) experience of man." If my finite answer holds against all specific experience challenges as being comprehensively anticipatory and adequate, the *universe is finite*, and all its components *definable*. Each life as we know it is *definitive*, i.e., consists of a plurality of terminable, ergo definite, experiences, beginning with each awakening and terminating with each surrender to sleep (no man can prove upon awakening that he is the man who he thinks went earlier to sleep, or that aught else which he thinks he recollects is other than a convincing dream). The intermittent beginnings and endings of conscious experience constitute an aggregate of definitive experiences—and the aggregate is therefore finite.

In the recent moments of historical experience, men as scientists adopted the law of conservation of energy: as predicated upon the sum total experience of physicists which recalled no contradiction to this hypothesis. They thus accomplished a finite packaging of all physical behaviors of physical universe as predicated also upon the hypothesis that all physical phenomena are entirely energetic.

By embracing all the energetic phenomena of total experience, the scientists secured a synergetic advantage for all energy accounting and prospecting. "Synergy" means "behavior of whole systems unpredicted by the behavior of any of its components or by any sub-array of its components." Corollary to synergy is *the law of the whole system*. Systems are definite as they return upon themselves in a plurality of directions, ergo have concave inwardness and convex outwardness, ergo inherently subdivide universe into mutually exclusive definitive macro and micro en-

ties. *The law of whole system* states that, given the sum of whole system pattern conception its component behaviors may be differentially discovered and predictably described as required by the already evidenced behavior functions implicit in the a priori-definitive experience and conceptioning of any given experience-verified system. Thus by the law of whole system as corollary of synergy, the component behaviors of systems may be predictably differentiated as primary and secondary componential sub-divisions of whole system and then progressively isolated and locally reconsidered for further dichotomy.

Adopting synergetic advantage, science hypothesized that the physical portion of universe is energetic and finite. Under this hypothesis Einstein wrote his equation of physical universe as  $E = MC^2$ . This said that the total of local system energy is the product of all concentric local systems of energy's self-interfered, shunt-holding patterns (M for mass) as multiplied by the entirely noninterfered local omnidirectional velocity of surface growth of an omnidirectional, outward-bound spherical wave of radiant energy (in terms of second power of radial wave module frequency growth rate).

In Einstein's formula mass constitutes all the patterns of precessionally self-interfered and concentrically shunted, ergo locally articulated and locally and periodically regenerative holding patterns of energy. This is also to say that M equals all the locally complex, concentric, self-associative, unique holding patterns of all energy, and  $C^2$  equals all the eccentrically dis-associative individual patternings of all energy (C being the radial or linear speed of radiant energy, which is approximately 186,000 mps).

But physical science lacked the experience which might have persuaded it to hypothesize what all universe is. Physical science therefore restricted its comprehensive accounting strategy to the special case of definitive isolations within the *physical* portion of universe. This left the remainder of all experiences, no matter how earnestly and meticulously reconsidered, outside the *defini-*

*tive* portion of comprehended experiences of universe, i.e., the physicists said all that is not physically encompassed as  $E = MC^2$  is metaphysical.

However, by my definition of universe, all that was relegated to metaphysical nebulosity is now embraced by finite universe along with the physically energetic wherefore all the hitherto "inexact sciences" may become rigorously defined, enjoying equatable treatability at optimum degree of determinability.

I have found a general law of total synergetical structuring, which we may call "The Scenario Principle." This principle discloses that "universe" of total man experience may not be simultaneously recollected and reconsidered, but may be subdivided into a plurality of locally tuneable event foci or "points" of which a minimum of four positive and four negative points are required as a "considerable set"; that is, as a first finite subdivision of finite universe. (This fourness coincides with basic quanta strategy.) All experience is reduced to nonsimultaneously "considerable sets" and holds irrelevant to consideration all those experiences which are either too large and therefore too infrequent, or too minuscule and therefore too frequent, to be tuneably considerable as pertaining to the residual constellation of approximately congruent recollections of experiences. A "considerable set" inherently subdivides all the rest of irrelevant experiences of universe into macro-cosmic and micro-cosmic sets immediately outside or immediately within the considered set of experience foci.

There are two inherent twilight zones of "*tantalizingly almost-relevant recollections*" spontaneously fed back in contiguous frequency bands—the macro-twilight and the micro-twilight.

It is a corollary of this first subdivision of universe that a *considerable set* is a locally definitive system of universe returning upon its considerability in all circumferential directions and therefore has an inherent *withinness* and *withoutness*, which two latter differentiable *functions* inherently subdivide all universe into the two unique extremes of macro and micro frequencies.



The "Principle of Design Co-Variables" says that "local structure is a set of frequency associable (spontaneously tuneable) recollectable experience relationships, having a regenerative constellar patterning as the precessional resultants of concentrically shunted periodic self-interferences, or coincidences of its systematic plurality of definitive vectorial frequency, *wave length and angle* inter relationships."

The precessionally regenerative concentricity of structure is antientropic, and evolves toward optimally economic local compressibility and symmetry. (See *Dymaxion World of Buckminster Fuller*, by Robert Marks, for Fuller's Law of omnioptimally-economic, omnitriangulated-point-system, symmetry relationships and relative abundance of frequency modulated multiplicative subdivision of unitary local systems; i.e., M (mass) means: All the universe's self-interfering complexes having concentrically self-precessing, local-focal-holding patterns resulting in locally regenerative constellar associabilities as positive-outside-in structures. C<sup>2</sup> (radiation) means: All the universe's nonself-interfering complexes having eccentrically inter-precessing, omnidirectionally diffusing patterns resulting in comprehensively degenerative negative limits of dissociabilities as negative (inside-out) de-structures.

In the chapters on Energetic-Synergetic Geometry I identify *second powering* with the point population of any one radiant (eccentric) or gravitational (concentric) wave systems circumferential arrays of any given radius stated in terms of frequency of modular subdivisions of the circumferential arrays radially-read systems' concentricity layering; *third powering* with the total point population of all the successive wave layers of the system; *fourth powering* with the interpointal domain volumes; *fifth* and *sixth powering* as products of multiplication by frequency doublings and treblings, etc. The *Doppler effect* or wave reception frequency-modulation caused by motions of *the observer* and *the observed* are concentric wave system fourth and fifth powering accelerations.

The Doppler effect is usually conceived of as an approximately "linear" experience. "You," the observer, stand beside a railway track (which is a "linear" model); a swift train approaches with whistle valve held open (at constant frequency pitch as heard "on board" by the engineer "blowing" the whistle). The whistle sound comes to you at approximately 700 mph, but the train is speeding toward you at 100 mph. The train's motion reduces the interval between the successive wave emissions, which in effect decreases the wave length which gives it "higher" pitch as heard

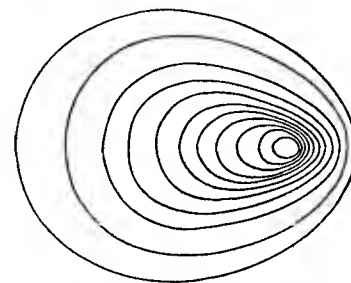


Fig. 1. Omnidoppler Effect

at your remote and "approached" hearing position. After the train goes by, the train runs away from each successive wave emission, thus increasing the interval between wave "crests" and therefore lengthening the waves, which apparently "lowers" the pitch as you hear it but not as others elsewhere may hear it. This is pure *observational* "relativity." But the real picture of the Doppler effect is not linear; it is omnidirectional.

The Doppler effect may also be *explained* in *omnidirectional*, experience-patterning conceptionality which is more informative than the familiar linear conceptioning of the railroad train and "you, at the crossing." "You" were flying in an air transport which exploded, and because of the sudden change in pressure differential between your in'ards and your out'ards at high altitude you personally have just been "exploded" into many separate parts receding from one another at high velocity. A series of secondary

explosions follows from somewhere in the center of the galaxy of exploding debris, as one item after another of the late airplane's explosive cargo is reached by progressive local conflagration-heat concentrations. The sound waves of the successive explosions speed after your receding parts amongst which are your two ear diaphragms as yet "stringily" interconnected with your exploding brain cells, which "hear" the explosion's sound waves first at low pitch. But as your parts explode from one another at a decelerating rate because of air friction, etc., the waves of remote explosion sounds "shorten" and pitches go "up." Now consider many separate, nonsimultaneous, secondary explosions of your various exploding parts all of varying intensities of energetic content and in varying degrees of remoteness and realize that the decelerations and accelerations of Doppler effects will render some of the explosive reverberations infra and some ultra to your tuning range limits of hearing, so that the sum total of *heard* events provides very different total conceptioning as heard from various points in the whole galaxy of exploding events whose separate components would tend to new grouping concentrations.

The Halo discovered in the next chapter is that of an omnidirectional, complex, high-frequency, Doppler-effected *hypothetical-zone experience* in an omnidirectional universal maelstrom of nonsimultaneous near and far explosions and their interaccelerating and refractive wave frequency patternings. Several of these fundamental concepts are also repeated several times in Halo, being reintroduced in various complex associations each of which provides unique discoveries.

In order to generate a spontaneous comprehension of the significance of the thoughts expressed in "Halo," which now follows, the latter essay will open with a swiftly marshalled digest of the epistemological concepts of this introduction.

## Omnidirectional Halo

Synergy means behavior of integral aggregate systems unpredicted by behaviors of any of their components or subassemblies of their components. Chrome-nickel-steel has a higher tensile, or integrally self-cohering, strength than the sum of the separate tensile strengths of its alloyed elements. Synergetic behaviors are commonplace throughout chemistry and biochemistry but so unfamiliar to man's visible spectrum range events that the word *syn-ergy*, though the equal in age of its companion word *en-ergy*, is popularly unfamiliar.

The lack of popular and academic familiarity with the word *synergy*, which in the English language alone denotes the behavior of whole systems unpredicted by behavior of their components, means that man in his everyday social world has not been in need of this word, which in turn tells us that he lacks this fundamental conception in his conscious thinking processes. He ascribes all behaviors unpredicted by his statistical probabilities to "luck" or miracle. This particular gap in man's everyday fundamental thinking and common sense accounts for many fallacies in his spontaneous reflexing and contemporary behavior. Ignorant of the regenerative significance of synergy, man is vulnerable to de-generative feed-back consequences in his comprehensive determinations.

*Universe is the comprehensive integral-aggregate system embracing all the separate integral-aggregate systems of all men's*

*consciously apprehended and communicated experiences.* The total of experiences is integrally synergetic. Universe is the comprehensive a priori *synergetic integral*. Universe continually operates in comprehensive, coordinate patternings which are transcendental to the sensorially minuscule apprehension and mental comprehension and prediction capabilities of mankind, consciously and inherently preoccupied as he is only with special local and nonsimultaneous pattern considerations.

Encyclopedias and dictionaries inventory man's progressively invented words for communicable identification of all his evolving experience cognitions. *Dictionary* is a collective concept. *Universe* is the ultimate collective concept—i.e., the collection of all intelligible, inherently separate evolutionary event aspects which latter apparently occur exclusively and only through differentiating considerations which progressively isolate the components of whole and inclusive sets, super-sets, and sub-sets of generalized conceptioning in retrospectively abstracted principles of relationships. The *generalized comprehensive principles of interrelationships* progressively discovered as governing our subsidiary generalized principles are embraced by our finition of universe.

The word con-sider-ation comes from *sidus*, the Latin for star, the focal point of an as yet nondifferentiated concentration of events—ergo, con-sider-able, or con-stellar patterning, means an exploratory grouping of “stars” or complex idea entities that seem to man's limited tuneability to stand out together.

Neither the set of all-experiences nor the set of all-the-words which describe them nor the set of all the generalized conceptual principles harvested from the total of experiences are either instantly or simultaneously reviewable. “What was that man's name?” Our answering service may take five seconds, five minutes, five hours, five days, or five generations to reply. Our conscious orderly reconsideration of our variable lag experiences discloses *subconsciously* co-ordinated regularities of feed-back rates governing the recall phenomena.

*All experiences* are finitely furnished with differentiated cognitions, recognitions and comprehensions. The finite furniture consists of widely-ranging degrees of comprehensive constellar complexities. A wide range of time investment magnitudes must be assigned to the respective considerations of the multitude of different constellar, experience-pattern comprehensions. We cannot read simultaneously all the words in the dictionary; yet the dictionary is a finite collection of finite word entities each in turn consisting of collections of finite letter symbol entities.

*Universe is finite because it is the sum total of finitely furnished experiences.* The comprehensive set of all-experiences synergetically constituting universe discloses an astronomically numbered variety of sub-set event-frequency rates and their respective rates of conceptual tuneability comprehension. It takes entirely different lengths of time to remember or “look up” different names or past event facts. *Universe*, like the dictionary, *though integral* is *ipso facto nonsimultaneously recollectable* and, therefore, as with the set of *all* the words of the dictionary, is *nonsimultaneously considerable* and therefore is also nonsimultaneously reviewable, ergo is synergetically incomprehensible, yet progressively revealing.

The age-long fallacious propensity which has frustrated adult man's adequate conceptioning of universe is that of spontaneously assuming that universe must consist of a simultaneously unit conceptuality—ergo, of simultaneous geometry or shape, i.e., a *simultaneous structure*. What is the shape of the universe? What are its boundaries? These are unitary, simultaneous static questions. They have no logical answer for universe *though finite is a nonsimultaneous structure*. Children know this better than their parents through innate conceptioning as yet unspoiled by erroneous logic. They remember the juggler putting a simultaneous array in the sky with nonsimultaneous tosses. The childhood representational pictures depict their dynamically arrayed concept of the “whole world” inventory, of mentally juggled arrays of

nonsimultaneously occurring experiences agglomerated without any intended geometrical interrelationships. In all lands the children's spontaneous pictures contain "the" house, trees, birds, dogs, flowers, grass, clouds, stars, the sun and *the moon*. The parents say, "Darling, a nice picture, but we don't have both the moon and the sun at the same time." The parents are wrong—both the sun and moon coexist at all times whether temporarily covisible or not. The parents' rationale has been damaged so that it can only consider and associate those items which are simultaneously grouped in unitarily static array. Yet in equal illogic the parents keep on attempting to see the universe of nonsimultaneity in unitary, static and simultaneous geometrical array as a "thing"—a very big "thing"—the biggest "thing."

It is in evidence that universe, as the coordinate integral of allexperience is *finite* yet nonsimultaneously recollectable—ergo, unitarily unpatternable—ergo, conceptually unthinkable—ergo, undefinable. This is to say *undefinable* does not mean *infinite* or *un-finite*. It means that—definability—*de-finite* is a sub-set of *finite*—ergo, pattern definition is a subdivision of *finite-yet-unitarily-undefinable universe*. *The definable conception is therefore the first thinkable sub-set functioning of universe.*

There are metaphysical yet cogent early words emergent from the limbo of prehistory's quasi-logical accounting continuities which show that intellect has long been aware of the *DE*function. For instance, DI-Vine, DI-, DE- (of Di-chotomy—cell division—regenerate through bi-multiplication). The concept of a *DEVINING DE-ITY*, i.e. the defining deity, the great intellectual capability of differentiating discernment, probably originated in the same conceptual logic as did DI-VIDE out of DI-VISION—to see the whole as functionally differentiable yet *only locally* and *progressively conceptual*. In the differential calculus this becomes the delta— $\Delta$   $\delta$  D—of fundamental differentiation.

Differentiable function  $x$  in respect to  $y$ . Functions do not occur exclusively of one another. Functions occur only as inher-

ently co-operative and accommodatively varying sub-aspects of synergetically transforming wholes. MULTIPLICATION accomplished only by DIVISION. Universe expanding through progressively differentiating considerations.

Definable thought patterning deals only progressively (by re-scanning) with the local event foci of experienced patternings of universe. Definable thought though constituting systematic consideration and orderly reconsideration, which returns omnidirectionally upon itself in local conceptual relationships in only a subdivision of *finite*, which is universe, which is *inherently inconceivable unitarily*.

*Inconceivability* does not mean *infinite* anymore than does *invisible*. Finite is unique to universe because it means complete, but not terminal. The locally definable entity is not complete, for it does not exist by itself. All experiments show that local entities are inherently both entropic and antientropic, i.e., all local systems are always intimately linked with the rest of universe by measurable *import* and *export* pattern transactions. Definable entities are uniquely functioning components of universe. Universe is the minimum as well as the maximum closed system of omni-interacting, precessionally transforming, complementary transactions of synergetic regeneration. Local perpetual motion systems are impossible, since universe is the minimum regenerative set of perpetually intercomplementary transformative functioning.

Systematic conceptioning and recollected conceptioning, both universal and local, which progressively traces, relates, and compares nonsimultaneously observable locally functioning entities is self-disciplined. The self-discovered capability to communicate to others by the recollectable and pictured word-tool developed a co-ordinate memory of all men.

Generalized systematic conceptuality's omni-directional relationships are only angularly configured and are independent of size or dimension. No man has ever "seen" outside himself. His

brain is a multi-frequency (four sensory ranges) scanning (TV) integrator, continually operating in co-ordination with a multitude of memory (kinescope taped) TV scanners. The whole array of *new* and *memory* TVs is frequency monitored by an angular and frequency modulated *pattern commonality scoring and score-predicting* conceptual co-ordination capability. The TV co-ordinating conceptual capability includes a score-guessing and score-guess testing faculty, as well as a strategic-tests-contriving-pattern considerator, all of which conceptual patterning proclivities are self-started and regenerated by synergetical *intellection*.

The conceptual process is never static. *Thinking* does not consist of the insertion of invented images into an otherwise empty vacuum-tube chamber called brain. *Thinking* is the self-disciplined process of preoccupied consideration of special-case sets of feed-back answers selected out of the multitude of high frequency alternating transceiver brain traffic. This traffic consists of omniexperience processed answers to present or past questions, formulated either by the conscious or subconscious co-ordinating initiative of the individual or possibly by the individual overlapping generation of group memory.

Because of the varying depths of storage of past experiences, some answers come back swiftly, some slowly. The recollectability rates are unpredictable. The returning-answers traffic is heterogeneous. Many answers come to questions we have forgotten that we have asked. Conceptually systematic tuning of questions and feed-back answers, comparatively considered in the brain, results in temporary, tuneably valved exclusion of all other incoming signals traffic. Discreet tuning admits consideration only of those recollections which are *clearly relevant* to the omnidirectional rounding out of systematic comprehension of the special case set of events intuitively selected for momentary focal consideration. Thinking consists then of a self-disciplined

deferment of conscious consideration of any incoming information traffic other than that which is lucidly relevant to the experience intuited quest for comprehension of the significance of the emergent pattern under immediate priority of consideration.

The thinking process results in varying degrees of lucidity of the arrayed residue of focal event patterns *uniquely consequent* to the *disciplined deferment* of irrelevancies. Thinking is a putting-aside, rather than a putting-in discipline, e.g., putting aside the tall grasses in order to isolate the trail into informative viewability. Thinking is FM—*frequency modulation*—for it results in tuning-out of *irrelevancies* as a result of definitive resolution of the exclusively tuned-in or *accepted* feed-back messages' pattern differentiability. As the exploring navigator picks his channel between the look-out detected rocks, the intellect picks its way between irrelevancies of feed-back messages. And as the navigator realizes secondarily that the channel winds between two sets of rocks, the rocks to starboard and the rocks to port, intellect also discovers secondarily that all the irrelevancies of feed-back information have inadvertently fallen into *two main* classes, as follows.

1. The class of all the finitely-furnished experience events which are *too large and too infrequent* to have *considerable frequency significance in-tuneability* in respect to the modular magnitude ranges under consideration.

2. The class of all the finitely-furnished experience events *too miniscule of wave module and of too high frequency* to in any way be significantly tuneable into the considered spectrum range.

Each class has its twilight zone of *almost* (or tantalizingly almost) *relevancy* which, if we were to accelerate our consideration rate, *might* attain *considerability* within the tactical limits of assignable capital-life-time intuitively budgetable to such consideration. Between the twilight zones of almost-too-large and almost-too-small to be relevantly considerable lies a *zone*

of *lucidly tuneable relevancy* of the experienced event recollections.

Because of the incessant *wheeling about* of humans first in the womb, then in the baby carriage, then on foot, in the auto and ship and plane roundabout a spinning earth in a spinning solar system within an involuting-evoluting, spirally spinning galaxy, totally inventoried experiences are inherently omnidirectional when considered as the sum of observational orientations. Universe (as all-experience) is inherently omnidirectional in its observational orientations—ergo, the temporary putting-aside of the two classes of irrelevancies requires an omnidirectional putting aside which differentiates as an *outwardly* dismissed macrocosmic disposition of the too-large and too-infrequent conceptual informations and an *inwardly* dismissed residue set of all the too minuscule and too frequent events—ergo, the lucidly *tuned in, residually considerable* set of event-foci lies within a *spherical zone* between the thus separated twilight zones of almost-considerable minuscules and bigs, respectively. As a consequence, the residual set of tuned-in experience event-foci are caught in a spherical zone trap of feed-back recollected considerability appropriate to systematic reviewing and possible definition.

Out of nonsimultaneously conceptual, yet finite, universe has emerged a *definitively conceptual geometry*, not a geometry invented by the conceiver but an a priori geometry discovered by the re-considerer as a residual relevancy constellation.

We thus discover that systematic recollection and thought-out *definition* lies within a *geometrically conformed zone* which inherently subdivides the universe into distinctly separate microcosm and macrocosm, which two are, however, only meagerly isolated from one another by a local constellation of considerable relationships. No matter how meager the network of zonal relationships of the residually considered star set of holding-pattern relevancy, the latter shuntingly impedes in some degree the

velocity of omnidirectional universal information traffic, forced by geometrical surroundment to pass through the zonal constellation. If a squadron of boats enters a river's mouth and passes upstream and anchors, their presence and the friction of their hulls will mildly retard or choke the river's flow. Thus do the constellation of considered events mildly choke the otherwise unim-

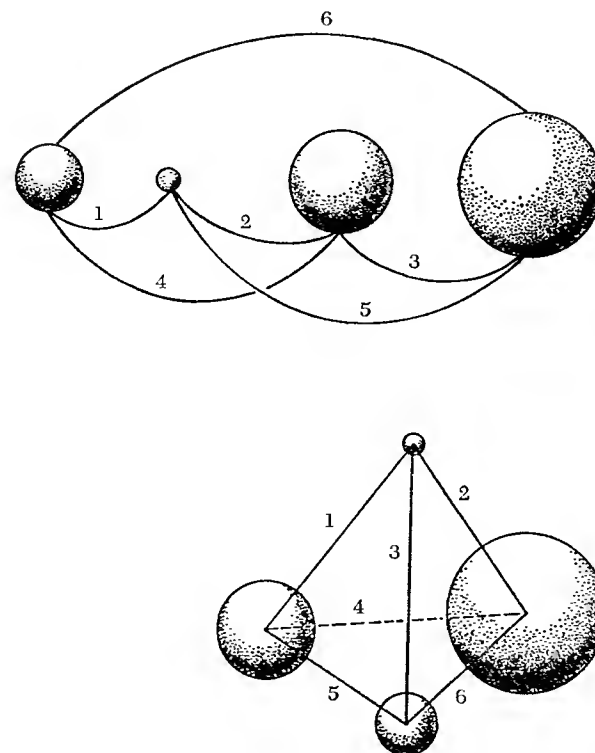


Fig. 2. Linear Tetrahedron. (A) A linear tetrahedron has six relationships. (B) Four unique frequencies (sizes) of entities, or particles, comprise the tetrahedron.

ped universal and geodesically-inter-routed communication traffic which they have separated into the two (micro-macro)

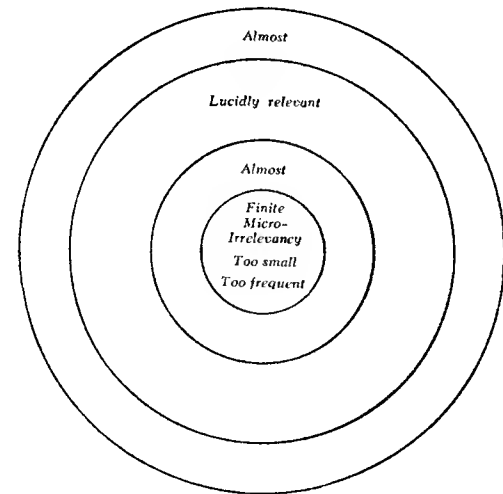
realms. As Heisenberg shows in his principle of ultimate indeterminism the physical act of measurement always alters the behavior of the measured phenomenon. In the same way we show here that the thinking process inherently alters the fundamental patterning of universal thought-about interrelationships.

We thus discover that thought and its tuneably differentiating local definitions constitute the *first subdivisions of finite universe*. Ergo finite universe is something greater than any definable local system's zone of constellar, geometrical lucidity which zone is itself *secondarily definable by its disparity of concavity of withinness and convexity of withoutness*.

In a con-sideration four is the minimum number of stars having an inherent arrangement of within-ness and without-ness. Therefore we discover next that the minimum *conceptually-considerable* generalized-experiences-set, affording macro-micro separation of universe, is a set of four local event-foci. These four stars have an inherent sixness of interrelationships. This *four-foci, six-relationship* set is definable as the tetrahedron. This minimum *fourness* of relevant-frequency, ergo *thinkable* "stars" coincides with quantum mathematics' requirement of four unique quanta numbers per each uniquely considerable "particle," quanta are inherently tetrahedral.

In the prime dichotomy of universe into a thinkable tetrahedral zone between unconsiderable irrelevancies, which in turn requires a secondary zonal separation into macro-micro momentarily unthinkable cosmoses, it becomes evident that the tetrahedral zone itself introduces a *tertiary dichotomy*—into the *two* inherent twilight zones of *almost considerable bigness* and *almost considerable littleness*, respectively.

We find a *fourth-stage dichotomy* of universe when we consider that the big and little twilights each respectively are again also comprised of two tetrahedra as minimal requirement, one as the *concave inward* tetrahedron and the other as the *convex outward* tetrahedron.



Finite Macro-Irrelevancy,  
Too large, Too infrequent

Fig. 3. Pattern of Thought. Thinking is frequency modulation—tuning out finite irrelevancies into two main classes: micro-macro, which leaves residual defined system as lucidly relevant.

We next, fifthly, discover that the positive-negative (convex-concave) tetrahedra constitute only the *minimum* functional dichotomy of finite universe, resulting in a *minimum* portion of the universe disposed in the microcosm and a *maximum* portion of universe assigned to the macrocosm. Among geometrical systems a tetrahedron encloses the minimum volume with the most surface and a sphere the most volume with the least surface. An approximately spherical polyhedral zonal dichotomy of finite universe by a spherical array of considered relevancies provides the *minimum portion of sum totally finite universe assigned to the macrocosm and the maximum relative portion of finite universe assignable to the microcosm*.

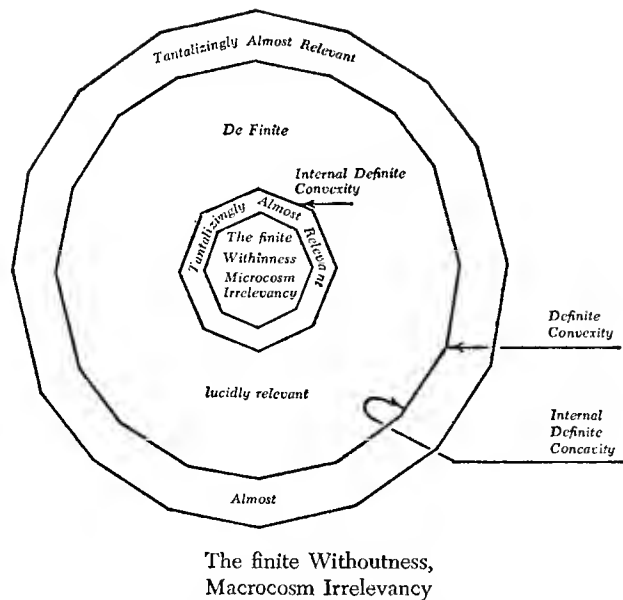


Fig. 4. Pattern of Thought—Phase 2. De-finite equals finite minus outwardness and inwardness.

We may say that the minimum zonally defined withinness conformation is tetrahedral and the minimum zonally defined withoutness is spherical. Therefore, the most extensive *lucidly conceptual and definable recollected-experience zone range* lies between a tetrahedral “withinness” twilight and a spherical “withoutness” twilight, beyond which are the nontuneable (1) outwardness and (2) inwardness—the subtracted Euler’s *two-ness* from *nonconceptual finiteness* which permits conceptual de-finiteness or definition of cognition.

Because the permitted *conceptuality* involves a unit expenditure from universe of a de-finite *twoness*, unit conceptuality must have a finite *twoness* penditure value, ergo prime conceptual unity acquires an inherent value of two. Unity is inherently plural. Unity is always divisible as twoness, or fourness, or six-

ness, of inherent minimum relationships. The alternate relative proportions of finite universe’s micro-macro magnitude limits of definitive dichotomy as tetrahedral minimum or spherical maximum introduce an inherently alternative propensity of universal finite accountability whose alternative eccentric-concentric reciprocity of omnidifferential-lag-rate compensations inherently

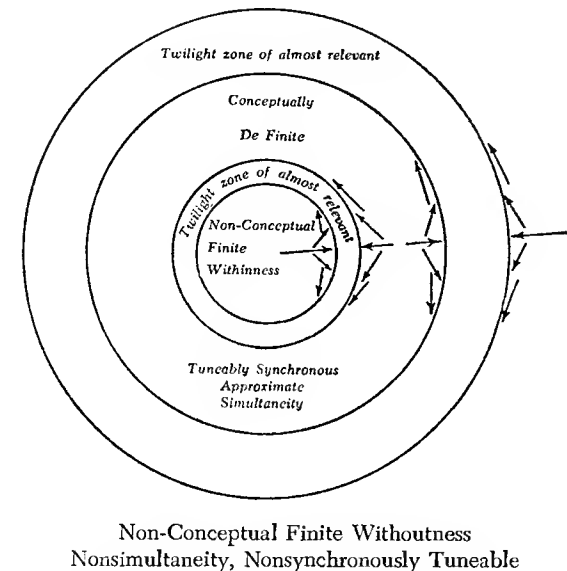


Fig. 5. Pattern of Thought—Phase 3. Concave means concentrate; convex means diffuse.

propagate and regenerate preferably considered universal evolution accomplished by omnidirectionally expansive-contractive wave propagating oscillations.

Frequency of modular subdivision of vectorial lines are ratioed to cyclic increments of time realizing the accomplished velocity. Unity is the full circle sweep around an axis. Angles are fractions of cyclic unity. Frequency means a discreet plurality of cycles within a given greater cyclic increment. Angle means a fraction



of one cycle. Angle is therefore sub-cyclic-unity, while frequency is plural unity. Angle is less than finite cyclic unity. Frequency is greater than finite cyclic unity. All physical *realizations* have relative-size, i.e., dimensionality. The phenomenon size consists of frequency modulated linear (i.e. vectorial) dimension. Angular phenomena being sub-finite cyclic unity, or zero frequency, may be independent of size. Generalized angular or tri-angular or tetrahedral conceptioning may be independent of size.

The three angles of one face of a triangle always add up to  $180^\circ$  as a phenomenon independent of the relative dimensional size of the triangles.  $180^\circ$  is one-half definitive cyclic unity. Every triangle has two faces—its obverse and reverse. Unity is two. So we note that the angles of both faces of a triangle add up to  $360^\circ$ . The sum of the external angles of two triangles' obverse and reverse faces is  $720^\circ$ . The sum of the external angles of a tetrahedron is  $720^\circ$ . The sum of two triangles' external angles is equivalent to one tetrahedron.

The relative size of a triangle is a secondary, observer induced consideration and depends upon the frequency modulated edge increments of the triangle as ratioed to some other physical experience entity.

Angles of tetrahedra always add up to  $720^\circ$  independent of size. The angles of a cube always add up to  $2160^\circ$  independent of the cube's size. A tetrahedron is definite yet independent of size. All angularly modulated definite geometrical systems or figures are independent of size.

Relationships which have definite integrity and independence of size are conceptual principles of abstract thought independent of physical realization.

The difference between the sum of all the angles around all the vertices of *any* system and the total number of the vertices times  $360^\circ$  (as angular unity) is  $720^\circ$  which equals two unities. The sum of the angles of a tetrahedron always equals  $720^\circ$ . The tetrahedron may be identified as the  $720^\circ$  differential between




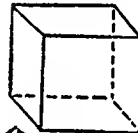

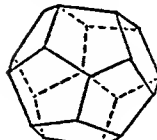

	No. of Vertices	Sum of Angles around each Vertex	Sum of angles multiplied by No. of Vertices. De-Finite	No. of Vertices multiplied by $360^\circ$ Finite	Finite minus De-Finite
Line	2	$0^\circ \times 1 = 0^\circ$	$0^\circ$	$360^\circ$	$720^\circ$
			$\times 2$	$\times 2$	$-0$
			$0^\circ$	$720^\circ$	$720^\circ$
 Triangle	3	$60^\circ \times 2 = 120^\circ$	$120^\circ$	$360^\circ$	$1080^\circ$
			$\frac{3}{360^\circ}$	$\frac{3}{1080^\circ}$	$\frac{360}{720^\circ}$
 Tetrahedron	4	$60^\circ \times 3 = 180^\circ$	$180^\circ$	$360^\circ$	$1440^\circ$
			$\frac{4}{720^\circ}$	$\frac{4}{1440^\circ}$	$\frac{720}{720^\circ}$
 Octa	6	$60^\circ \times 4 = 240^\circ$	$240^\circ$	$360^\circ$	$2160^\circ$
			$\frac{6}{1440^\circ}$	$\frac{6}{2160^\circ}$	$\frac{1440}{720^\circ}$
 Cube	8	$90^\circ \times 3 = 270^\circ$	$270^\circ$	$360^\circ$	$2880^\circ$
			$\frac{8}{2160^\circ}$	$\frac{8}{2880^\circ}$	$\frac{2160}{720^\circ}$
 Icosahedron	12	$60^\circ \times 5 = 300^\circ$	$300^\circ$	$360^\circ$	$4320^\circ$
			$\frac{12}{3600^\circ}$	$\frac{12}{4320^\circ}$	$\frac{3600}{720^\circ}$
 Dodecahedron	20	$108^\circ \times 3 = 324^\circ$	$324^\circ$	$360^\circ$	$7200^\circ$
			$\frac{20}{6480^\circ}$	$\frac{20}{7200^\circ}$	$\frac{6480}{720^\circ}$
 Vector Equilibrium	12	$90^\circ \times 2 = 180^\circ$ $60^\circ \times 2 = 120^\circ$	$300^\circ$	$360^\circ$	$4320^\circ$
			$\frac{12}{3600^\circ}$	$\frac{12}{4320^\circ}$	$\frac{3600}{720^\circ}$

Table 1. Angular Topology Independent of Size.

any definite local geometrical system (Greek *solid*) and finite universe.

A line has two vertices with angles around each of its vertexial ends equal to  $0^\circ$ . The sum of these angles is  $0^\circ$ . The sum of the vertices (2) times unity ( $360^\circ$ ) is  $720^\circ$ . The remainder of  $0^\circ$  from  $720^\circ$  is  $720^\circ$  or two unities, or one tetrahedron, Q.E.D.

A triangle has three vertices. The sum of the externally viewed angles around each is  $120^\circ$  of which  $60^\circ$  is on the obverse side of each vertex of the triangle; for a triangle, like a line, if it exists, is an isolatable system always having its positive and negative aspects. The angles of ob- and re-verse triangles add up to  $360^\circ$ . The triangle is three vertices times  $360^\circ = 1080^\circ$  which minus  $360^\circ$  (sum of triangles' angles) =  $720^\circ$  Q.E.D.

Two triangles' external angles make one convex tetrahedron or  $720^\circ$ . The coincident concave tetrahedron's angles add up to  $720^\circ$ . The positive and negative tetrahedra always coexist +  $720^\circ - 720^\circ = 0^\circ$ .

Four vertices equal one positive tetrahedron; therefore, one positive conceptual convex tetrahedron is +  $720^\circ$  and the difference between it and finite universe is one-negative nonconceptual concave tetrahedron. Neither the positive nor the negative tetrahedron may occur without the other.

A zero tetrahedron is vector equilibrium, is *universe*.

Experience is inherently discontinuous and islanded and each special experience represents a complex of generalized principles operative in special or limited size (i.e., dimension, i.e., frequency) modulated realization.

Brower's mathematical theorem states that if any number of points on a plane are stirred around an x amount on cessation of the stirring, one of the points may be shown to have been the center point of the stirring—and never to have moved in relation to the others. In order to be "stirred," these points must have multi-dimensionality and the cluster of stirred points must have obverse and reverse sides. Therefore, the obverse-reverse sides must each have visible points that were the centers of the stirring



Tetrahedron	720°	$\frac{720^\circ}{720^\circ} = 1$ tetrahedron
Octahedron	240° x 6 = 1440°	$\frac{1440^\circ}{720^\circ} = 2$ tetrahedra
Prism	240° x 6 = 1440°	$\frac{1440^\circ}{720^\circ} = 2$ tetrahedra
Cube	270° x 8 = 2160°	$\frac{2160^\circ}{720^\circ} = 3$ tetrahedra
Icosahedron	300° x 12 = 3600°	$\frac{3600^\circ}{720^\circ} = 5$ tetrahedra
Rhombic Dodecahedron	109°28' x 24 = 2628° 70°32' x 24 = 1692° 2628° x 1692° = 4320°	$\frac{4320^\circ}{720^\circ} = 6$ tetrahedra
Dodecahedron	324° x 20 = 6480°	$\frac{6480^\circ}{720^\circ} = 9$ tetrahedra
Triacontahedron	180° x 60 = 10,800°	$\frac{10,800^\circ}{720^\circ} = 15$ tetrahedra
 Two Frequency Regular Geodesic	180° x 80 = 14,400°	$\frac{14,400^\circ}{720^\circ} = 20$ tetrahedra = 5 x 2²
Three Frequency Alternate Geodesic	20° x 9 = 180° 180° x 180 = 32,400°	$\frac{32,400^\circ}{720^\circ} = 45$ tetrahedra = 5 x 3²
 Four Frequency Triacon Geodesic	180° x 240 = 43,200°	$\frac{43,200^\circ}{720^\circ} = 60$ tetrahedra = 15 x 2²

Table 2. Tetrahedral Mensuration applied to Well-Known Polyhedra. We discover that the sum of the angles around all vertices of all solids is evenly divisible by the sum of the angles of a tetrahedron. The volumes of all solids may be expressed in tetrahedra.

and, short though the distance between the obverse-reverse surface neutral center points, the short line between the obverse-reverse visible central points' obverse-reverse poles constitutes a *neutral axis* of the system of points and isolates two points for axial functioning in every layer of both polar zones of every point system swarm. Pauli's exclusion principle verifies that each of the stirred points in Brower's theorem and the point which did not move have their inherently separate counter part points which discloses both the neutral axis formed by the two points that do not move and the obverse and reverse sets of moving points. Thus, we discover that even a "points" angular topological difference between its definiteness and finiteness is  $720^\circ$ .

There is no phenomenon "solid matter"; therefore there may not be a "solid" sphere, nor a "solid" surface sphere. All spheres consist of a high frequency constellation of event-points, all of which are approximately equidistant from one central event "point." All the points in the surface of a sphere may be interconnected. If most economically interconnected, they will subdivide the surface of the sphere into an omnitriangulated spherical web matrix. As the frequency of triangular subdivision of a spherical constellation of omnitriangulated points approaches subvisibility the *difference* between the sums of the angles around all the vertex points and the numbers of vertices when multiplied by  $360^\circ$  remains constantly  $720^\circ$  which is the sum of the angles of two times unity (of  $360^\circ$ ). The sum of the angles of a tetrahedron, regular or irregular, is always  $720^\circ$ , just as the sum of the angles of a planar triangle is always  $180^\circ$ . We may state two laws which say: (1) the sum of the surface angles of any polyhedron equals  $V^n$  multiplied by  $360^\circ$  minus one tetrahedron; (2) the sum of the angles of any polyhedron (including a sphere) is always evenly divisible by one tetrahedron. We may also say that: Where unity (1) equals  $360^\circ$ ,  $180^\circ$  equals one-half unity ( $\frac{1}{2}$ ) and that  $720^\circ$  equals two times unity (2); therefore, we may identify a triangle as one-half unity and a tetrahedron as two unities ( $\frac{1}{2}$ ), (2).


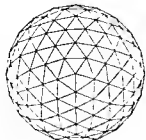
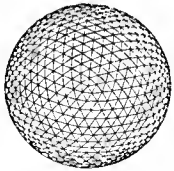
	Number of Vertices Multiplied by $360^\circ$	Number of Triangles Multiplied by $180^\circ$ Equals Sum of Angles around All Vertices	Difference
 Regular Geodesic Two-Frequency Icosahedron	$42 \times 360^\circ = 15,120^\circ$	$80 \times 180^\circ = 14,400^\circ$	$15,120^\circ - 14,400^\circ = 720^\circ =$ 1 tetrahedron
 Regular Geodesic Four-Frequency Icosahedron	$162 \times 360^\circ = 58,320^\circ$	$320 \times 180^\circ = 57,600^\circ$	$58,320^\circ - 57,600^\circ = 720^\circ =$ 1 tetrahedron
 Regular Geodesic Nine-Frequency Icosahedron	$812 \times 360^\circ = 292,320^\circ$	$1620 \times 180^\circ = 291,600^\circ$	$292,320^\circ - 291,600^\circ = 720^\circ =$ 1 tetrahedron

Table 3. Tetrahedral Mensuration applied to Spheres.

The calculus assumes that a plane is infinitesimally congruent with the surface of a sphere at the point of the plane's tangency of the sphere. The calculus and the spherical trigonometry therefore also assumes that the sums of the angles around any point of any sphere are always  $360^\circ$ . The demonstration thus far made discloses that the sums of the angles around all the vertices of a sphere will always be  $720^\circ$  or one tetrahedron less than the sum of the vertices times  $360^\circ$ , ergo, one basic assumption of the calculus is invalid.

In review, this chapter shows that the phenomenon "infinity" of the calculus is inherently finite. Universe equals the aggregate of men's consciously apprehended and communicated experiences. By my definition, universe is nonsimultaneous but finite because all experiences *begin* and *end* and being terminal are finite; ergo, universe as the sum of finites is finite. The first subdivision of nonsimultaneous universe is effected by a local system which divides the universe into three finite parts: the portion of universe outside, the portion of the universe inside, and the system. We find local spherical systems of universe are definite rather than infinite as presupposed by the calculus' erroneous assumption of  $360^\circ$  degree of surface plane azimuth around every point on a sphere. Nonsimultaneous universe is finite but conceptually undefinable; local systems are definable. We discover that universe is finite and a local system is *definite* and the definite local system plus one tetrahedron (or two unities) equal finite universe. The difference between universe and any local system is always one tetrahedron. Every local system may be subdivided into whole tetrahedra.





















If we combine, first, the fact of Van't Hoff's discovery that all the organic chemical compounds are structurally cohered in the terms of the tetrahedra's four vertexes and, secondly, the fact of Linus Pauling's X-ray diffraction implemented discovery that all the metallic elements thus far experimentally analyzed combine in nonvertexially interlinked tetrahedral structures and, thirdly, the facts which I have disclosed in this and the preceeding pages

we may well conclude that it is reasonable to adopt the working assumption that: *all of the definable structuring of universe is tetrahedrally co-ordinate in rational number increments of the tetrahedron.*

Finite minus de-finite means two tetrahedra minus one tetrahedron. Finite universe equals four cyclic unities. Each tetrahedron equals two; therefore, finite (4) minus conceptual definite (2) equals two, which constitutes one negative invisible tetrahedron.

Reviewing again, this halo conceptioning discloses the minute yet finitely discrete inaccuracy of the fundamental assumption upon which the calculus was built; to wit, that for an infinitesimal moment a line is congruent with the circle to which it is tangent and that a plane is congruent to the sphere to which it is tangent. Calculus had assumed  $360^\circ$  around *every* point on a sphere. The sum of a sphere's angles was said to be infinite. The Halo concept and its angularly generated topology proves that there are always  $720^\circ$  or two times unity of  $360^\circ$  less than the calculus assumption of  $360^\circ$  times every point in every "spherical" system. This  $720^\circ$  equals the sum of the angles of a tetrahedron. We can state that the number of vertices of any system (including a "sphere" which must, geodesically, in universal energy conservation, be a polyhedron of  $N$  vertices) minus two times  $360^\circ$  equals the sum of the angles around all the vertices of the system. Two times  $360^\circ$  which was the amount subtracted, equals  $720^\circ$ , which is the angular description of the tetrahedron. The spherical error of calculus is one discrete tetrahedron. We have to take angular "tucks" in the nonconceptual finity (the calculus infinity) to make a local definite system (the calculus finity). The "tucks" add up to  $720^\circ$ , i.e., one tetrahedron. The difference between conceptual de-finity and non-conceptual finity is one non-conceptual finite tetrahedron.

In the general theory of variables it has been recognized that the set of all the variables may be divided into two classes—(1) the class of all the inclusive variables within a given system and

Synergetically Symmetric					
True Rational Volumes where Tetrahedron is Unity	Locally Symmetrical, Omni-triangulated	Locally Mixed Sym- asym. Omni-triangulated	Locally Asymmetrical, Omni-triangulated	Space Fillers	Complementary Space Fillers
1					•
4					•
3				•	
20					•
18.510					
8.490				•	
6				•	
25.986				•	
65.019				•	
96				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	
				•	

(2) the class of all those operative exclusive of the system. It has been further recognized that the variables outside the system may affect the system from outside. In varying degrees specific levels of sub-classes of these "background" or outside variables are identified as *parameters*. This background "inside and outside" concept is a two dimensional or flat-projection concept.

Our omnioriented Halo concept converts the *parameter* consideration to conceptual four dimensionality and discloses a set of parameters inside as well as *outside* the zone of lucidly considered system stars. And the parameters are at minimum four-fold: [1] the convex twilight zone of inward relevancy, [2] the concave twilight zone of outward relevancy, [3] the *stark* non-conceptual irrelevancy inward, and [4] the stark nonconceptual irrelevancy outward. Parameter [1] is a tetrahedron. Parameter [2] is a tetrahedron. Parameter [3] plus parameter [4] comprise an invisible tetrahedron.

The *considered* relevancy within the zone of lucidity consists of one more tetrahedron. For each "considered tetrahedron" there are three parameteric tetrahedra. We discover that our omni-halo epistemological accounting consists of rational tetrahedronal quantation.

When we missed the moon in our first attempt to shoot a rocket to it, the tetrahedronal tuck in universe may have represented that discrete error. It was directly relatable to our lack of awareness of the disparity of the calculus. This disparity is corollary to the same mathematical disparity that was physically discovered in atomic behavior, which brought its discoverer's the 1957 Nobel prize and which discovery invalidated "physics'" long held "law of conservation of parity" which held the obverse and reverse to be identical, ergo, redundant. A further corollary to the tetrahedronal disparity of systems invalidates the functioning significance of the transcendental irrational constant *Pi*. The comprehension of this mild error and implementation of the mathematical strategy of nature's co-ordinate system which I have disclosed and named Energetic/Synergetic Geometry

may greatly improve the extra-terrestrial undertakings whose effectiveness has not been frustrated so much by inadequate energy supply as by inadequacy of fundamental mathematical conceptioning and its resultant technical incapability. Our computer instrumentation is phenomenally good, but our problem stating and question asking have been inadequate.

In the inherently subjective language of physical transformation of an omni-interaltering and accelerating universe there are only two fundamental kinds of observable transformational changes, i.e., *angular*, or sub-unity *alterations*, and *linear*, or plural unity (frequency modulated) *accelerations*. These subjectively viewed transformations of universe are also objectively and locally controllable by man through designed angle and frequency modulations.

In the Energetic/Synergetic Geometry's isotropic, vectorially triangulated, omnidirectional matrix initiations the *angular* and *linear* accelerations are rational and uniformly modulated, whereas in the *xyz* co-ordinate analysis of the calculus only the linear is analyzable and the angular resultants are usually irrationally expressed.

Substituting the word tetrahedron for the number 2 completes my long attempt to convert all the residual heretofore unidentifiable integers of topology into geometrical conceptability.

By the omnidirectional star-studded Halo reasoning the development of a conceptual tetrahedron automatically charges a negative yet invisible tetrahedron into the nonsimultaneous, *nonconceptual finite* universe, comprehensive to the local definite conceptual system.

This discovery that all the differences between de-finite conceptual systems and finite, yet nonconceptual total universe seems to provide a fundamental means of identifying the physical phenomena entropy. Entropy no longer means inherent escape of energy from any local system or decrease of local order or increase to disorder. Entropy now means the invisible extraction from any local definitive system of the negative conceptual



entity, i.e., one negative tetrahedron deposited into universe balance of energy conservation permitting the local extraction of any visible orderly conceptual system. Entropy is not random; it is always one negative tetrahedron. It may have a wide variety of relative size (frequency) dimensions. A tetrahedron is  $720^\circ$  and is an angular constancy independent of size. It is finite. It can account finitely for any discrete rate of energy loss.

In résumé: By our systematic accounting of angularly definable concave-convex local systems we discover that the sum of the angles around each of every local system's geodesically inter-related vertices is always two vertexial unities less than universal nondefined finite totality. We call this discovery the law of finite universe conservation. Therefore, mathematically speaking, *all defined conceptioning always equals finite universe minus two*. The indefinable quality of *finite universe-inscrutability* is exactly accountable as *two*.

$$\text{Ergo, finite-definite} = 2 \text{ De (Di)} = 2$$

$$\text{de-finite-finite} = -2 \text{ (di) de} = -2$$

This is a subtractive 2—not a divisive 2, which latter occurs as the second derivative stage of systematic zonal differentiation into the fundamentally positive and negative yet disparate and inseparable aspect characteristics of concavity and convexity.

The finiteness of universe is thus finitely proven by comprehensive geometrical system topological accounting. We have, therefore, a comprehensive universal synergetic accounting advantage in respect to all systematic experience considerations both physical and metaphysical.

The first synergetic accounting advantage of known man-history derived from the two-millennium-old discovery of the invariant sum ( $180^\circ$ ) of the angles of the obverse face of any plane linear bound triangle. The second major synergetical advantage accrued to Newton's inverse ratio law of gravity as a comprehensive astronomical accounting system. The third major synergetical accounting advantage was derived one hundred years ago from Euler's topological discovery that the numbers

of vertices of polyhedra plus the number of their faces always equalled the sum of the number of the polyhedra's edges plus the number two.

The fourth major synergetical accounting advantage accrued a half century ago to the physicists' hypotheses of the law of conservation of energy which held that energy had shown experimentally that it could be neither created nor destroyed. From this assumption, which threw all scientific and nonscientific considerations, other than the energetically physical, into the then seemingly indeterminate realm of metaphysical, came the successive wave-quanta accounting theory and subsequent fission and successful nuclear components discovery and inventorying. Fifthly, Willard Gibbs' phase rule in a formula similar to Euler's in which the degrees of freedom are in effect the vectorial edges brought *synergetic* advantages to chemical strategy. Sixthly, the same synergetic accounting advantage is now extended by our law of *non-simultaneous finite universe pattern conservation* to embrace definitive consideration of any and all experiences, physical or metaphysical. The latter strategically equatable accounting advantage derives from a corollary of synergy which shows that systematic accounting of the behavior of whole aggregates may disclose discretely predictable angle and frequency magnitudes required of some unknown components in respect to certain known component behaviors of the total and known synergetic aggregate. Therefore, the definitive identification permitted by the *law of finite universe conservation* may implement conscious synergetic definition strategies with incisive prediction effectiveness, possibly of epoch initiating magnitude.

We inaugurate exploration with our *theorem of omniuniverse tetrahedral structuring*. Whereas Van't Hoff showed that all inorganic chemical structuring is tetrahedrally configured in vertexial linkage and Pauling's X-ray diffraction analyses show omnitetrahedral configuration interlinkages of gravitational centers of compounded atoms in all metals analyzed our omni-tetrahedral structuring as a triple bonded linear tetrahedral



array may coincide with the *DNA* helix, and the tetra's four unique quanta corners may explain *DNA's* dichotomy transferred T,A; G,C patterning control of all biological species reproductions.

A trial balance reconsideration and interconsideration of the significance accruing to the inherent order of consciously permitted cognitions thus far inventoried as derived from our epistemological premise that universe is the aggregate of consciously observed and communicated experiences discloses an orderly succession of derivative dichotomies and synergetic surprises accruing to the grand operational review of derivative patterns.

First, we recognize that *intellect took the measure of definitive energy universe* because Einstein as intellect wrote  $E = MC^2$ . And we recognize the inherent irreversibility of that definitive capability because the concept of energy defining intellect is unthinkable. The de-fining of finite universe is a function of intellect synergetically manifest in universe. Subsequent to Einstein's intellect's definition of energy universe in two conceptual functions  $M$  and  $C^2$  his definitive physical realm hypothesis of universe was proven valid by fission. With fission came *empirical validation* of Einstein's theretofore hypothetical equation as now energetically definitive. Because the difference between definite and finite universe is definitively two, it follows that the difference between the physical portion of universe and total universe is definitive two. Whereas all metaphysical phenomena were shuntingly disposed by the Einsteinian physicists into a then supposedly infinite universe's ephemeralization; it now comes as a surprise result of our finite-universe hypotheses that the *metaphysical* is as strictly definitive as the *physical*. Ergo the definite physical portion of universe plus the metaphysical or nondefinitive portion of universe together equal total finite universe and the metaphysical must therefore equal a nondefinitive but finite twoness.

The metaphysical which is now also contained within the

comprehensive finiteness of universe is greater by two in its comprehensive magnitude than the physical portion of universe which lies inherently within the micro-macro metaphysical. And as the metaphysical embraces intellection, we may say that the nonsimultaneous *all-knowledge* (omniscience, or wisdom) gained by all men out of *all-experience* (universe) is comprehensive by a discreet margin of two to *all-energy* (omnipotence) whose measure omniscience took. Omniscience is greater than omnipotence and the difference is two. Omnipotence plus two equals omniscience.  $META = 2$ .

Intellections are *cumulative pattern apprehensions* and are synergetically integrative as wisdom and wisdom initiates new mathematical hypotheses. Mathematics implements man's calculation within minutes regarding energy actions requiring eons of time. Man's intellect masters energy's fastest behaviors. Energy light years are calculated in intellect seconds. Omniscience is evidently of comprehensively transcendental alacrity to the speed of light whose relatively slow articulations in universe are readily anticipated by intellectually initiated and disciplined computation of mind.

There is a question-asking-possibility that omniscience may be transcendental in velocity to the definitive physical speed of energy omnipotence. The synergetic *anticipatory* capabilities of intellect (in respect to conceptual formulations of evolutionary transforming potentials of universe and the *anticipatory* stratagems evolved by intellect to test such hypotheses) imply the possibility of a velocity transcendence of omniscient functioning over omnipotence functioning which could mean an intellectually regenerated evolutionary extension of universe in generalized synergetical integrity. Intellect's comprehensive anticipatory objectivities indicates a speed of functioning transcendental to physical events. Intellect may be "creating" finitely extending and re-fining universe as it asks each next good question.